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PROCEEDINGS
OF THE
LITERARY AND PHILOSOPHICAL SOCIETY
OF
LIVERPOOL,
DURING THE
FIFTY-SIXTH SESSION, 1866-67.
No. XXI.



LONDON:
LONGMAN, GREEN, READER, & DYER.
LIVERPOOL:
DAVID MARPLES, LORD STREET.
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1867.

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This Volume has been edited by the Honorary Secretary.

The Authors have revised their Papers.

The Authors alone are responsible for facts and opinions.

The Society exchanges Proceedings with other publishing bodies,
through the Secretary, from whom back numbers may be obtained.

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Those marked † are Original Members of the Society.

Life Members are marked with an Asterisk.

Oct. 11, 1833 Aikin, James, 2, *Drury-lane*, and 4, *Gambier-terrace*,

Jan. 8, 1861 Anderson, David, 23, *Clifton Park, Birkenhead*.

March 7, 1864 Archer, F. jun., B.A. Trin. Coll., Cantab., 10, *Rodney-street*, and 5, *Fenwick-street*.

*Nov. 28, 1853 Archer, T. C., F.R.S.E., F.R.S.S.A., Director of the Industrial Museum, Scotland, *Edinburgh*.

Dec. 14, 1863 Ashe, Theop. Fielding, 45, *South Castle-street*, and 4, *Dingle-lane*.

Feb. 22, 1855 Avison, Thomas, F.S.A., 18, *Cook-street*, and *Fulwood Park, Aigburth*.

- Dec. 10, 1860 Barr, Rev. Hermann, Ph. D.
 Jan. 11, 1864 Bagshaw, John, 87, *Church-street*, and *Canning-terrace*,
 201, *Upper Parliament-street*.
 May 1, 1854 Bahr, G. W., 4, *Cable-street*, and 2, *South-hill Grove*,
Aigburth.
 May 4, 1863 Bailey, Fras. J., M.R.C.S., 51, *Grove-street*.
 April 17, 1865 Baker, W. J., 24, *Fenwick-street*.
 Dec. 15, 1862 Balman, Thomas, M.D., 6, *Bedford-street South*.
 Oct. 29, 1860 Banister, Rev. W., B.A., *St. James's Mount*.
 Oct. 29, 1866 Bell, David, 15, *Tithebarn-street*, and 189, *Grove-street*.
 Jan. 13, 1862 Baruchson, Arnold, 8, *Edmund-street*, and *Blundell-*
sands, Great Crosby.
 March 9, 1857 Bell, Christopher, *Moor-st.*, and 60, *Bridge-st., B'head*.
 Dec. 10, 1866 Benas, Baron Louis, Banker, 5, *South Castle-street*.
 Nov. 14, 1864 Bennett, J. M., *St. George's-place, Lime-street*, and
 109, *Shaw-street*.
 Feb. 6, 1854 Bennett, William, *St. George's-place, Lime-street*, and
Lancaster.
 Nov. 2, 1863 Billson, Alfred, 10, *Cook-street*, and 5, *Cavendish-road*,
Birkenhead Park.
 Oct. 31, 1859 Birch, Jas., 13, *The Temple, Dale-street*.
 Jan. 25, 1864 Birchall, James, Governor of the *Liverpool Industrial*
Schools, Kirkdale. HON. SECRETARY.
 Nov. 12, 1866 Birkenhead, E. H., Doct. Sci., 69, *Whitefield-road*.
 April 15, 1861 Blake, James, 63, *Kitchen-street*, and 45, *Canning-st.*
 Mar. 9, 1866 Blood, William, *Chamber of Commerce*.
 Nov. 26, 1866 Boulton, Jos., 24 *North John-street*.
 *Mar. 6, 1835 Boulton, Swinton, 1, *Dale-st.*, and 3, *Bedford-st. South*.
 Jan. 12, 1863 Bolton, Ogden, *Prince's Buildings, Harrington-st.*,
 and 10, *Great George-square*.
 Nov. 27, 1865 Biggs, Arthur Worthington, *Brown's Buildings*, and 76,
Upper Huskisson-street. (I. Cook and Sons.)
 Oct. 21, 1844 Bright, Samuel, 1, *North John-street*, and *Sandheys*,
Mill-lane, West Derby.
 *Jan. 8, 1855 Brockholes, James Fitzherbert, *Puddington Old Hall*,
near Neston.
 Oct. 31, 1864 Bromham, William, 57, *South John-street*, and 8,
Montpellier-terrace, Upper Parliament-street.
 Oct. 29, 1866 Brown, Rev. H. Stowell, *Windsor-terrace*, 274, *Upper*
Parliament-street,

- Dec. 2, 1861 Browne, G. Mansfield, 15, *Fenwick-street*, and 15, *South-hill-road, Toxteth Park.*
- Nov. 12, 1866 Browne, Edgar A., 83, *Everton-road.*
- April 21, 1862 Bulley, Samuel, *Borough Buildings*, and *East Lodge, Prince's Park.*
- Feb. 4, 1867 Burden, Edward, 79, *Upper Parliament-street.*
- April 18, 1864 Burne, Joseph, *Royal Insurance Office*, 1, *North John-street*, and *Higher Tranmere.*
- Nov. 12, 1866 Butler, Rev. G., M.A. Oxon, *The College, Liverpool.*
- Mar. 9, 1863 Buxton, David, F.R.S.L., Principal of the School for the Deaf and Dumb, *Oxford-street.*
- *May 1, 1848 Byerley, Isaac, F.L.S., F.R.C.S., *Victoria-road, Seacombe*, TREASURER.
- Oct. 29, 1866 Byramjee, Dadabhoy, 14, *Cook-street.*
- Feb. 23, 1863 Callon, W. J., M.D., 125, *Islington.*
- Nov. 3, 1862 Cameron, John, M.D., M.R.C.P., Physician to the Southern Hospital, and Lecturer on Medicine at Royal Inf. Sch. of Med., 17, *Rodney-street.*
- April 7, 1862 Campbell, John, *Liverpool and London Chambers*, and *Oak House, Aigburth-hall-road.*
- Jan. 9, 1865 Cariss, Astrup, *Cook-street*, and 6, *Hope-place.*
- April 7, 1862 Cawkitt, James M., *Underwriters' Room, Exchange*, and 23, *Queen's-road, Everton.*
- Dec. 2, 1861 Chadburn, William, 71, *Lord-street.*
- Dec. 1, 1861 Clare, John Leigh, 11, *Exchange-buildings*, and *The Old Hall, Aigburth-road.*
- Oct. 31, 1859 Clark, Charles, 17, *North John-street*, and *Linden Cottage, Rock Ferry.*
- Jan. 26, 1857 Clay, William, 97, *Sefton-street*, and 4, *Parkhill-road.*
- Jan. 22, 1866 Cohen, Lewis, S., 44, *Ranelagh-street.*
- Jan. 26, 1863 Commins, Andrew, LL.D. Dub., *Clarendon-chambers*, 1, *South John-street.*
- Jan. 22, 1850 Cox, Henry, 21, *Exchange-alley*, and *Waterloo.*
- Oct. 6, 1862 Crosfield, Wm., jun., 28, *Temple-st.*, and *Alexandra-drive, Ullett-road.*
- Nov. 26, 1866 Curtis, Rev. F. H., M.A. Oxon, *The College, Shaw-st.*
- Feb. 8, 1864 Cuthbert, J. R., 40, *Chapel-street*, and 40, *Huskisson-street.*
- Nov. 2, 1863 Dawbarn, William, *The Temple, Dale-street*, and 99, *Shaw-street.*

- Oct. 1, 1866 Dawson, Thos, *Rodney-street*.
- Nov. 12, 1866 Davies, E., F.C.S., *The Laboratory, Roy. Inst., Colquitt-street*.
- Nov. 27, 1848 Dove, Percy Matthew, F.S.S., 1, *North John-street, and Claughton*.
- Nov. 27, 1863 Dove, Jno. M., *Royal Insurance Office, and Claughton*.
- Jan. 28, 1848 Drysdale, John James, M.D. Edin., M.R.C.S. Edin., 44, *Rodney-street*.
- Oct. 5, 1863 Drysdale, W. G., 7, *Elm-terrace, Beech-street, Fairfield, and 14, East side Queen's Dock*.
- Jan. 7, 1867 Drysdale, Donald M., 7, *Newbie-terrace*.
- Feb. 4, 1856 Duckworth, Henry, F.L.S., F.R.G.S., F.G.S., 5, *Cook-street, and 2, Gambier-terrace*.
- *Nov. 27, 1848 Edwards, John Baker, Ph.D. Gies., F.C.S., *Canada*.
- Oct. 29, 1866 Elliot Adam, *Ashlea, Aigburth-road*.
- March 10, 1862 Ellison, Christopher O., *Adelphi-chambers, South John-street, and Esplanade, Waterloo*.
- April 7, 1862 English, Charles J., 26, *Chapel-st., and 26, Falkner-sq.*
- Feb. 20, 1865 English, C. R., 26, *Falkner-square*.
- Dec. 14, 1863 Erskine, Robert.
- Nov. 27, 1865 Estill, Fred. Chas., 1, *Liverpool and London Chambers*.
- April 30, 1860 Fabert, John Otto William, 1, *Parliament-street, and 3, St. James' Mount*.
- Feb. 18, 1866 Fairclough, Rev. R. J., M.A. Cantab., 44, *Irvine-st., Edge-hill*.
- Oct. 31, 1864 Fearenside, William, 5, *Cook-street, and Seacombe*.
- *Dec. 13, 1852 Ferguson, William, F.L.S., F.G.S., *Oriel-chambers, and 2, St. Aidan's-terrace, Birkenhead*.
- Feb. 9, 1863 Finlay, William, Senior Mathematical Master, Middle School, *Liverpool College, and 49, Everton-road*.
- *April 8, 1837 Fletcher, Edward, 4, *India-buildings, and 81, High Park-street*.
- Oct. 1, 1866 Fletcher, Alfred, H.M. Inspector of Alkali Works for the Western District; *Whiston, Prescott*.
- Nov. 26, 1866 Flück, Christian, 1, *Montpelier-terrace, Upper Parliament street*.
- *Mar. 19, 1855 Foard, James Thomas, 5, *Essex-court, Temple, E.C.*
- *Feb. 6, 1854 Gee, Robert, M.D. Heidelb., M.R.C.P., Lecturer on Diseases of Children, Royal Infirmary School of Med.; Physician, Workhouse Hospital; 5, *Abercromby-square*.

- Jan. 21, 1867 Gibson, Thomas, jun., *Beech-mount, Beech-st., Fairfield.*
- March 4, 1861 Ginsburg, Rev. Christian D., LL.D. Glasg., *Brooklea, Aigburth-road.* PRESIDENT.
- Feb. 20, 1865 Gordon, Rev. A., M.A., 49, *Upper Parliament-street.*
- Dec. 2, 1861 Graves, Samuel R., M.P., *Baltic-buildings, and The Grange, Wavertree.*
- Oct. 5, 1863 Gray, Jno. M'Farlane, *Vauxhall Foundry, and 80, Prince Edwin-street.*
- Nov. 14, 1853 Greenwood, Henry, 32, *Castle-street, and Falkner-sq.*
- Jan. 22, 1855 Hakes, James, M.R.C.S., Surgeon to the Northern Hospital, *Hope-street.*
- Nov. 12, 1867 Halled, W. B., 7, *Parkfield, Prince's Park.*
- Feb. 23, 1863 Hall, Charlton R. 17, *Dale st., and 111, Shaw-st.*
- Dec. 16, 1866 Hall, Hugh Fergie, Messrs. Charlton R. Hall & Co., *Dale-street.*
- Feb. 18, 1867 Hallet, ———, M.D., S.S. "City of New York." (Inman Line.)
- *Jan. 21, 1856 Hardman, Lawrence, 5, *India-buildings, and Rock Park, Rock Ferry.*
- Feb. 9, 1863 Hart, Thos. Aubrey, M.A. Oxon, 81, *Bedford-street South.*
- Feb. 6, 1866 Hassan, Rev. E. *Alma-terrace, Sandown-lane.*
- Nov. 13, 1865 Hayward, John Williams, M.D., 15, *Mount Vernon-road.*
- Feb. 6, 1865 Hebson, Douglas, 13, *Tower-chambers, and 58, Bedford-street South.*
- March 4, 1867 Hewetson, Jos., 171, *Upper Parliament-street.*
- March 6, 1865 Hey, John, M.R.C.S., 126, *Islington.*
- Dec. 28, 1846 Higgins, Rev. H. H., M.A. Cantab., F.C.P.S., *Rainhill.* VICE PRESIDENT.
- *Oct. 31, 1836 Higginson, Alfred, M.R.C.S., Surg. Southern Hosp., 44, *Upper Parliament-street.*
- Nov. 16, 1863 Holden, Adam, 48, *Church-street, and 6, Curlton-terrace, Milton-road.*
- Nov. 13, 1854 Holland, Charles, 70, *Tower-buildings South, and Liscard-vale, New Brighton.*
- *Dec. 14, 1862 Holt, Robert Durning, 6, *India-buildings, and 2, Rake-lane.*
- Nov. 26, 1866 Hopps, Alfred, 5, *Somerville, Seacombe.*
- March 22, 1847 Horner, Henry P., 2 *Derby-square, and 5, Devonshire-road, Prince's Park.*

- Nov. 4, 1861 Philip, Thomas D., 49, *South Castle-street*, and 47, *Prospect-vale, Fairfield.*
- Dec. 28, 1846 Picton, James Allanson, F.S.A., Chairman of the Library and Museum Committee, 11, *Dale-street*, and *Sandy-knowe, Wavertree.* VICE PRESIDENT.
- April 30, 1866 Praag, Rev. James, 29, *Mount-street.*
- Feb. 6, 1854 Prange F., *Royal Bank-buildings, Dale street*, and 2, *Grove Park, Lodge-lane.*
- Jan. 22, 1866 Raffles, William Winter, 54, *Brown's Buildings*, and *Sunnyside, Prince's Park.*
- April 7, 1862 Rankin, Robert, Chairman of the Dock Board, 55, *South John Street*, and *Brombro' Hall, Cheshire.*
- †Mar. 18, 1812 Rathbone, William, 21, *Water-street*, and *Greenbank, Wavertree.*
- Nov. 12, 1860 Rathbone, Philip H., 4, *Water-street*, and *Greenbank cottage, Wavertree.*
- Mar. 24, 1862 Rathbone, Richard Reynolds, 21, *Rumford-place*, and *Laurel Bank, St. Michael's-road.*
- *Jan. 7, 1856 Rawlins, Charles Edward, jun., 23, *Cable-street*, and 1, *Windermere-terrace, Prince's Park.*
- *Nov. 17, 1851 Redish, Joseph Carter, 18, *Chapel-street*, and 15, *Sandon-street.*
- Nov. 2, 1840 Robberds, Rev. John, B.A., 58, *High Park-street.*
- Jan. 25, 1864 Roberts, Fred. T., M.B., B.Sc. London, M.R.C.S., *Northern Hospital.*
- Dec. 10, 1866 Roberts, Rev. R. H., B.A., *Litherland-road, Bootle.*
- Feb. 4, 1867 Robinson, Jos. F., 5, *Bagot-street, Wavertree.*
- Feb. 9, 1863 Ronald, Lionel K., 19, *Dale-street*, and *Broad Green.*
- April 18, 1854 Rowe, James, 16, *South Castle-st.*, and 106, *Shaw-st.*
- Feb. 6, 1865 Rowlandson, William, jun., *Vauxhall Foundry.*
- Feb. 20, 1865 Samuel, Albert H., 52, *Hanover-street*, and *Canning-terrace, Upper Parliament-street.*
- April 16, 1866 Samuel, Charles S., 14, *Canning-street.*
- April 7, 1862 Samuel, Harry S., 11, *Orange-court*, and 2, *Canning-st.*
- Nov. 13, 1864 Samuelson, Edward, 54, *Hanover-street*, and *Huyton.*
- Jan. 11, 1864 Samuelson, James, 18, *Dale-street*, and *New Brighton.*
- March 19, 1866 Sephton, Rev. John, M.A., *Liverpool Institute.*
- Nov. 16, 1863 Sheldon, E. M., M.R.C.S., 256, *Vauxhall-road.*
- Oct. 29, 1866 Shimmin, Hugh, 21, *North John-street*, and *Tue-brook, West Derby.*

- Nov. 2, 1863 Skillicorn, John E., *Whitley-terrace, 206, Walton-road.*
- Nov. 7, 1864 Skinner, Thomas, M.D. Edin., 1, *St. James's Road.*
- *April 21, 1862 Smith, James, *Barkeley House, Seaforth, and 7, Water-street.*
- †Mar. 13, 1812 Smith, James Houlbroke, 28, *Rodney-street, and Greenhill, Allerton.*
- Feb. 23, 1863 Smith, J. Simm, *Royal Insurance Office, North John-street.*
- Dec. 10, 1866 Smith, Elisha, Messrs. Henry Nash & Co, 5, *India-buildings.*
- Jan. 7, 1867 Smith, Caleb. Jun., 21, *Oxford-street.*
- Feb. 24, 1862 Snape, Joseph, Lecturer on Dental Surgery, Royal Infirmary School of Medicine, 75, *Rodney-street.*
- Nov. 12, 1860 Spence, Charles, 4, *Oldhall-street.*
- Feb. 10, 1862 Spence, James, 5, *Fenwick-st., and 10, Abercromby-sq.*
- Nov. 27, 1865 Spola, Luigi, LL.D., 1, *Lully-Street, Grove-street.*
- Jan. 22, 1866 St. Clair, Wm., 4, *Trafalgar-road, North Egremont.*
- Dec. 14, 1857 Steele, Robert Topham, 4, *Water-street, and Wavertree.*
- Nov. 12, 1866 Stephenson, Rev. H. M., M.A. Cantab., *The College, Liverpool.*
- Jan. 9, 1865 Stewart, Robert E., L.D.S., R.C.S., Dental Surgeon Southern Hospital, and Liverpool Dental Hospital, 37, *Rodney-street.*
- Oct. 18, 1858 Stuart, Richard, 10, *Exchange-street East, and Brooklyn Villa, Breeze-hill, Walton.*
- *Feb. 19, 1855 Taylor, John Stopford, M.D. Aberd., F.R.G.S., 1, *Springfield, St. Anne-street.*
- Jan. 23, 1843 Taylor, Robert Hibbert, M.D. Edin., L.R.C.S. Ed., Lect. on Ophthalmic Medicine, Royal Infirmary School of Medicine, 1, *Percy-street.*
- Jan. 8, 1866 Thomson, James, 323, *Park-road.*
- Dec. 11, 1854 Thompson, Samuel H., *Thingwall Hall, Knotty Ash.*
- Nov. 17, 1850 Tinling, Chas., 44, *Cable-street, and 34, Onslow-road, Elm Park.*
- March 4, 1867 Topham, Jas. W., 156, *Chatham-street.*
- Dec. 1, 1851 Towson, John Thomas, F.R.G.S., Scientific Examiner, Sailors' Home, 47, *Upper Parliament-street.*
- Jan. 7, 1867 Trimble, Robt., *Riversdale-road, Aigburth.*
- *Feb. 19, 1844 Turnbull, James Muter, M.D. Edin., M.R.C.P., Phys. Royal Infirmary, 86, *Rodney-street.*

- Oct. 21, 1861 Unwin, William Andrew, 11, *Rumford-place*, and
Newbie-terrace.
- Feb. 6, 1865 Vernon, Thomas Holmes, *Woolton*.
- Oct. 21, 1844 Vose, James Richard White, M.D. Edin., F.R.C.P.,
Phys. Royal Infirmary, 5, *Gambier-terrace*.
- Mar. 18, 1861 Walker, Thomas Shadford, M.R.C.S., 30, *Rodney-street*.
- Jan. 27, 1862 Walmsley, Gilbert G., 50, *Lord-street*.
- Jan. 9, 1865 Walthew, William, *Phœnix Chambers*, and *Vine Cottage*,
Aughton.
- Dec. 2, 1861 Weightman, William Henry, *Leith Offices*, *Moorfields*,
and *Hapsford-lane*, *Litherland*.
- Nov. 28, 1864 We'd, Walter, 12, *Castle-st.*, & *Moor-lane*, *Great Crosby*.
- April 7, 1862 Whittle, Ewing, M.D., Lecturer on Med. Jurisprudence,
Royal Inf. Sch. of Med., 65, *Catherine-street*.
- Nov. 2, 1863 Whitty, W. Alfred, "*Daily Post*" Office, and 8,
Catherine-street.
- April 7, 1862 Willans, Thomas H., 82, *Rodney-street*.
- Mar. 18, 1861 Wood, Geo. S., 20, *Lord-st.*, and *Bellevue-rd.*, *Wavertree*.
- Dec. 14, 1863 Zwilchenbart, Rodolph, jun., *Queen Insurance Buildings*,
and 26, *Bedford-street South*.

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- 1.—1812 Peter Mark Roget, M.D. Edin., F.R.C.P., F.R.S., F.G.S.,
F.R.A.S., F.R.G.S., &c., 18, *Upper Bedford-
place, London.*
- 2.—1819 John Stanley, M.D. Edin, *Whitehaven.*
- 3.—1827 Rev. William Hincks, F.R.S.E., F.L.S., Professor of Natural
History in University College, *Toronto, C.W.*
- 4.—1828 Rev. Brook Aspland, *Dukinfield, Cheshire.*
- 5.—1833 The Right Hon. Dudley Ryder, Earl of Harrowby, K.G.,
D.C.L., F.R.S., *Sandon-hall, Staffordshire, and
39, Grosvenor-square, London, W.*
- 6.—1833 James Yates, M.A., F.R.S., F.L.S., F.G.S., &c., *Lauderdale
House, Highgate, London.*
- 7.—1835 George Patten, A.R.A., 21, *Queen's-road West, Regent's Park,
London.*
- 8.—1835 William Ewart, M.P., *Cambridge-square, Hyde-park, London.*
- 9.—1835 The Right Hon. Lord Brougham and Vaux, M.A., D.C.L.
F.R.S., Chancellor of the University of Edin-
burgh, 4, *Grafton-street, London, W., and
Brougham Hall, Penrith.*
- 10.—1836 The Most Noble William, Duke of Devonshire, K.G., M.A.,
F.R.S., F.G.S., &c., Chancellor of the University
of Cambridge, *Devonshire House, London, W.,
and Chatsworth, Derbyshire.*
- 11.—1838 George Biddell Airy, M.A., D.C.L., F.R.S., Hon. F.R.S.E.,
Hon. M.R.I.A., V.P.R.A.S., F.C.P.S., &c.,
Astronomer Royal, *Royal Observatory, Green-
wich.*
- 12.—1840 James Nasmyth, F.R.A.S., *Penshurst, Kent.*
- 13.—1840 Richard Duncan Mackintosh, L.R.C.P., *Exeter.*
- 14.—1841 Charles Bryce, M.D. Glasg., Fell.F.P.S.G., *Brighton.*
- 15.—1844 J. Beete Jukes, M.A., F.R.S., M.R.I.A., F.G.S., Local Direc-
tor of the Geological Survey of Ireland, 51,
Stephen's-Green, Dublin.
- 16.—1844 T. P. Hall, *Coggeshall, Essex.*
- 17.—1844 Peter Rylands, *Warrington.*

- 18.—1844 John Scouler, M.D., LL.D., F.L.S., *Glasgow*.
- 19.—1844 Thomas Rymer Jones, F.R.S., F.Z.S., F.L.S., Professor of Comparative Anatomy, *King's College, London*.
- 20.—1844 Robert Patterson, F.R.S., M.R.I.A., *Belfast*.
- 21.—1854 Sir Charles Lemon, Bart. M.A. Cantab., F.R.S., F.G.S., *Penrhyn, Cornwall*.
- 22.—1844 William Carpenter, M.D. Edin., F.R.S., F.L.S., F.G.S., Registrar, *London University*.
- 23.—1848 Rev. Thomas Corser, M.A., *Strand, Bury*.
- 24.—1850 Rev. St. Vincent Beechy, M.A. Cantab., *Worsley, near Eccles*.
- 25.—1851 James Smith, F.R.S.S.L. and E., F.G.S., F.R.G.S., *Jordanhill, Glasgow*.
- 26.—1851 Henry Clarke Pidgeon, *London*.
- 27.—1851 Rev. Robert Bickersteth Mayor, M.A., Fell. St. John's College, Cantab., F.C.P.S., *Rugby*.
- 28.—1852 William Reynolds, M.D., *Coed-du, Denbighshire*.
- 29.—1853 Rev. James Booth, LL.D., F.R.S., &c., *Stone, near Aylesbury*.
- 30.—1857 Thomas Jos. Hutchison, F.R.G.S., F.R.S.L., F.E.S., H.B.M. Consul, *Rosario*.
- 31.—1861 Louis Agassiz, Professor of Natural History in Harvard University, *Cambridge, Massachusetts*.
- 32.—1861 William Fairbairn, LL.D., C.E., F.R.S., *Polygon, near Manchester*.
- 33.—1861 Rev. Thomas P. Kirkman, M.A., F.R.S., *Croft Rectory, Warrington*.
- 34.—1862 The Right Rev. H. N. Staley, D.D., Bishop of Honolulu, *Sandwich Islands*.
- 35.—1863 Edward J. Reed, Chief Constructor of H. M. Navy, *Admiralty, and Hyde Vale, Greenwich, S.E.*
- 36.—1865 John Edward Gray, Ph. D., F.R.S., &c., *British Museum*.
- 37.—1865 George Rolleston, M.D., F.R.S., Linacre Professor of Physiology in the University of Oxford, *Oxford*.
- 38.—1866 Cuthbert Collingwood, M.A. and M.B. Oxon, F.L.S.
- 39.—1867 J. W. Dawson, LL.D., F.R.S., F.G.S. &c., Principal and Vice-Chancellor of McGill University, *Montreal*.

CORRESPONDING MEMBERS.

LIMITED TO THIRTY-FIVE.

- 1.—1867 Albert C. L. G. Günther, M.A., M.D., Ph.D., British Museum,
Editor of the "Zoological Record."
- 2.—1867 J. Yate Johnson, *London*.
- 3.—1867 R. B. N. Walker, *Gaboon, West Africa*.

ASSOCIATES.

LIMITED TO TWENTY-FIVE.

- 1.—Dec. 2, 1861 Captain Sir James Anderson, "Great Eastern."
(Atlantic.)
- 2.—Jan. 27, 1862 Captain John H. Mortimer, "America," (Atlantic.)
- 3.—March 24, 1862 Captain P. C. Petrie, "City of London," Commo-
dore of the Inman Line of American Steam
Packets. (Atlantic.)
- 4.—Feb. 9, 1863 Captain James P. Anderson, R.M.S.S. "Africa,"
Cunard Service. (Atlantic.)
- 5.—Feb. 9, 1863 Captain John Carr, (Bushby and Edwards,) ship
"Scindia," (Calcutta.)
- 6.—Feb. 9, 1863 Captain Charles E. Price, R.N.R., (L. Young
and Co.) ship "Cornwallis." (Calcutta and
Sydney.)
- 7.—April 20, 1863 Captain Fred. E. Baker, ship "Nippon."
(Chinese Seas.)
- 8.—Oct. 31, 1864 Captain Thompson, ship "Admiral Lyons."
(Bombay.)
- 9.—Oct. 31, 1863 Captain Edward Berry, ship "Richard Cobden."
(Chili.)
- 10.—Oct. 31, 1864 Captain Alexander Browne, (Papayanni,) S. S.
"Agia Sofia." (Mediterranean.)

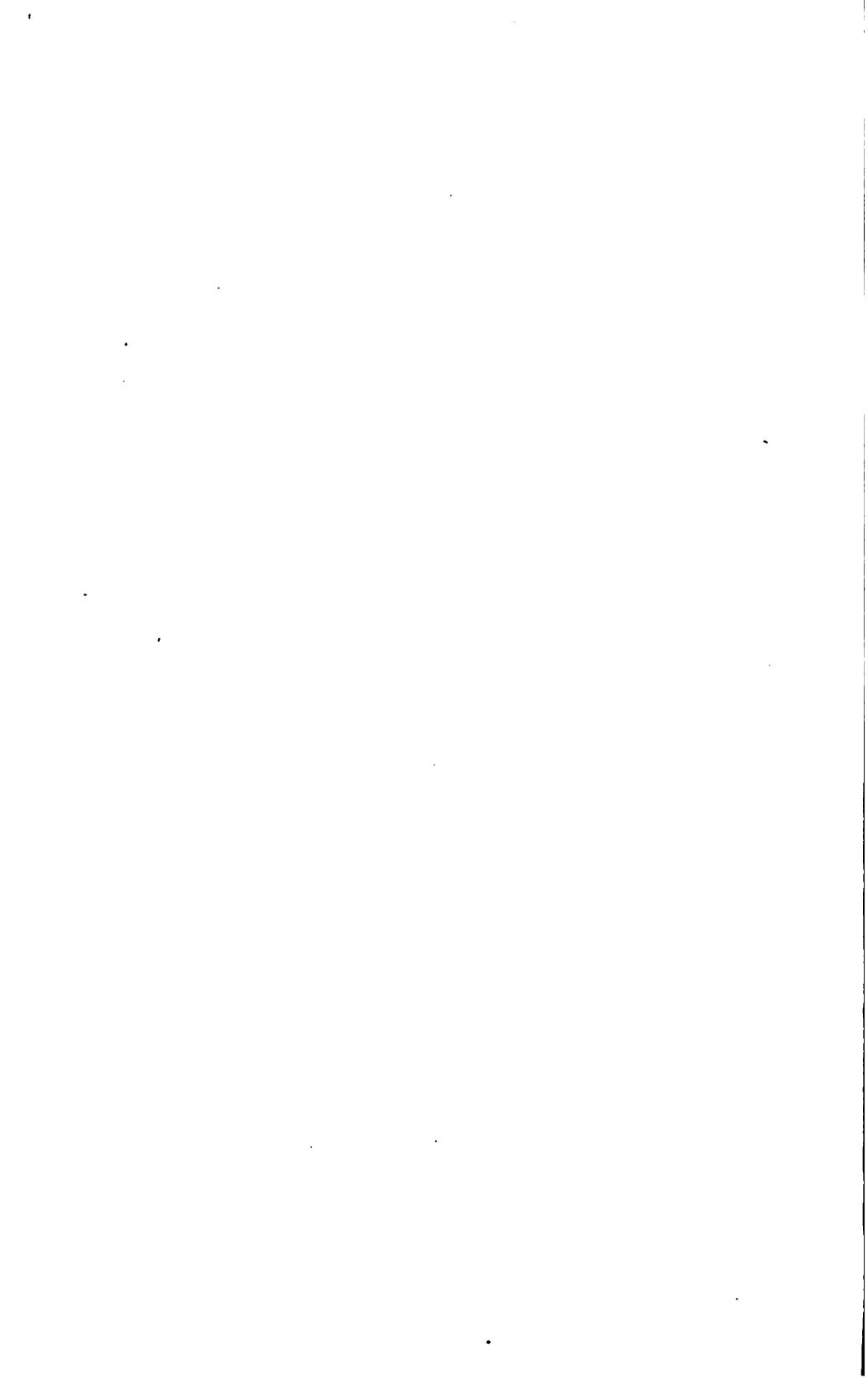
- 11.—Oct. 31, 1864 Captain Whiteway, ship "Annie Cheshyre."
(Pacific.)
- 12.—April 13, 1865 Captain Alexander Cameron, (Boult, English,
and Brandon,) ship "Staffordshire." (Shanghai.)
- 13.—Dec. 11, 1865 Captain Walker, ship "Trenton."

Dr. *The Literary and Philosophical Society in Account with ISAAC BYERLEY, Treasurer, to October, 1866.* **Cr.**

To paid Brakell's Account for Printing	£	s.	d.
" Marples "	48	6	0
" Tindling, for Printing and Stationery	93	8	6
" Secretary's Expenses of Management, viz.,	16	17	6
On Dr. Collingwood's Account	£12	12	0
On Mr. Redish's Account—			
Delivery of Circulars and Notices	8	8	6
Balance of Annual Dinner Account	1	3	0
Courier	1	0	0
Postages, Parcels &c.	1	16	4
Amount in excess of receipts for Testimonial to Dr. Collingwood	2	10	0
Editorial fee	10	10	0
	37	19	10
Mrs. Johnson's Account for Tea, Coffee, &c.	15	19	6
Collector's Commission	7	14	6
Waiters Attendance	2	2	6
	222	8	4
Balance carried down	252	10	4
	£474	13	8

Errors excepted.

Audited and found Correct, { A. J. MOTT.
JAS. BIRCHALL.



PROCEEDINGS
OF THE
LIVERPOOL
LITERARY AND PHILOSOPHICAL SOCIETY.

ANNUAL MEETING.—FIFTY-FIFTH SESSION.

ROYAL INSTITUTION, October 1st, 1866.

J. A. PICTON, Esq., F. S. A., PRESIDENT, in the Chair.

The Minutes of the last meeting of the fifty-fourth session having been read and signed, the Chairman expressed his congratulations to the members present upon their meeting once again for business, and called upon the Honorary Secretary to read the following

REPORT.

The Council rejoice in being able to open their report by the assurance that the Society during the past year has continued its career of success and improvement, and that, while the past session has added few events to its history, it has shown abundant evidence of the interest displayed by the members, and the usefulness of their exertions. The Nineteenth Volume of the Transactions, being the record of the preceding year, was placed in the hands of the members last spring, and the Council feel that this volume fully sustains the reputation of preceding years. The important contribu-

tion of Dr. Ginsburg, one of our Vice-Presidents, on "The Kabbalah," is contained therein, as it was impossible to publish it in the volume of the session during which it was read. The pagination of the paper, however, is continued from this volume, so as to enable members, so disposed, to have it bound up in its proper place. The volume for the present year is being proceeded with, though from various causes some time will elapse before it can be issued.

The number of members continues satisfactory, though it does not increase so much as could be desired in a town of such magnitude and importance as Liverpool. Of the one hundred and ninety-five ordinary members on the roll, at the commencement of the session, fourteen have been removed by death, resignation, and other causes, while eighteen new members have been elected, thus making the present number of ordinary members one hundred and ninety nine. The number of honorary members remains as before, thirty eight; the name of Sir William Rowan Hamilton having been removed by death, and the name of Dr. Collingwood, the former Honorary Secretary, having been added to the list. The Associates have been increased by one addition, and now number thirteen; the total number of the members, therefore, of all classes, now amounts to two hundred and fifty.

Some of the changes in the muster-roll cannot be passed over without special notice. The late Sir William Rowan Hamilton, Astronomer Royal of Ireland, and honorary member of this society since the year 1847, had won for himself the highest reputation as a man of science, and by his originality and power had secured a place amongst the greatest mathematicians of Europe. He will be remembered as one of the few who have furnished new methods for the advancement of mathematical science.

The Council have likewise to record the removal, by the death of one of our ordinary members, of a gentleman of high

scientific attainments, and an eminent authority on all matters connected with the construction of iron vessels and steam navigation—Mr. Charles Wye Williams, who, although prevented by age and the infirmity of deafness from taking an active part in the proceedings of the Society, yet contributed very recently several valuable communications, while the indefatigable industry with which he prosecuted his experiments in his private laboratory has done much to explode many errors, and to establish some new views of the nature of steam. As the originator of the City of Dublin Steam-packet Company, one of whose vessels was among the first to cross the Atlantic in 1837; as one of the chief promoters of the Peninsular and Oriental Company; as the inventor of watertight compartments, and as one of the first to perceive the advantage of building ships of iron, he is justly entitled to the credit of possessing great and unusual foresight. Mr. Williams was the author of various scientific works: “On the Construction of Marine Steam Boilers;” “On the Steam-generating Power of Marine and Locomotive Boilers;” “On Heat, and its relation to Water and Steam,” &c. He gained the £500 prize for a model boiler and furnace, which, with characteristic liberality, he gave to a public institution. For an essay “On the Combustion of Coal and the Prevention of Smoke, Chemically and Practically Considered,” he received the Society of Arts £25 gold medal, presented by Prince Albert. He was an Associate of the Institute of Naval Engineers, and of the Institute of Civil Engineers, and was known as an authority in both.

By the removal to Canada of Dr. Edwards, one of the Vice-Presidents, the Society loses the active services of one of its most zealous and effective members, and will greatly miss the lucid explanations with which he was accustomed to bring before it any recent discovery in chemical science, which he rendered doubly interesting by the skilful exhibition

of accurate and beautiful experiments. It is gratifying to know that, as a Life Member, he will remain on the roll, and that his connection with the Society will not be altogether severed.

An important change in the administration of the Society's affairs has necessarily been caused by the withdrawal, in the course of last session, of Dr. Collingwood from the post of Honorary Secretary, which he had filled for nearly six years. This was occasioned by his having accepted an appointment as Scientific Naturalist to a Government expedition to the China seas—an evidence of the extent to which his ability and attainments were recognised beyond the limits of the society. It will be in the recollection of the members that the Society expressed, by formal resolution, "its sense of the very valuable services rendered by him in the onerous office of Honorary Secretary, as well as its regret at the loss sustained by his removal." The zeal which he uniformly displayed for the Society's welfare, and the untiring energy with which he conducted its business, did much to raise the Society to its present position of honour and utility.

The Treasurer's accounts, which will be laid before you this evening, show a satisfactory financial position, and that the ordinary revenue of the Society suffices for its disbursements.

The annual dinner was held at the Childwall Abbey Hotel, on Saturday, the 7th of July, and though the attendance was not numerous, those members who were present were much gratified with their day's recreation.

Several "receptions" were held during the past session, on the Mondays alternate between the meetings, at the houses of various members, and were found productive of advantage by strengthening the bond of union already subsisting between members of the society. These "receptions"

were much enjoyed, as on former occasions, by those who participated in them.

By the expiration of the term of three years for which the President serves, that office now becomes vacant, and it will therefore be necessary this evening to elect a successor to Mr. Picton, the retiring President. It will further be necessary to select some member for the office of Honorary Secretary, that post having been temporarily filled by Mr. C. J. Redish, who consented to serve, on the retirement of Dr. Collingwood, only until the annual meeting.

Your Council have now only to recommend five gentlemen for election on the new Council, in accordance with law 36, and submit the following names:—Arnold Baruchson, Rev. Enoch Mellor, M. A., Thos. J. Moore, Cor. Mem. Z. S., John Newton, M. R. C. S., and William A. Unwin.

(Signed)

J. A. PICTON, President.

J. C. REDISH, Hon. Sec.

It was moved by Mr. MARPLES, seconded by Mr. BYERLEY, and resolved, "That the Report now read be received and adopted."

The TREASURER then submitted the annual statement of accounts, duly audited by Messrs. A. J. Mott and Jas. Birchall, showing a balance in favour of the society of £250 invested in dock bonds, and £2 10s. 4d. in the Treasurer's hands; whereupon it was moved by Mr. NEWTON, seconded by Dr. NEVINS, and resolved, "That the Treasurer's accounts be passed."

The society next proceeded to ballot for a President, in place of Mr. Picton, whose term had expired, and the Rev. Christian D. Ginsburg, LL. D., was declared duly elected, and took the chair accordingly.

A ballot was then taken for five new members of Council, whereupon the following gentlemen, being those recommended by the retiring council, were duly elected :—Arnold Barnuchson, Thomas J. Moore, Cor. Mem. Z. S., John Newton, M. R. C. S., William A. Unwin, and Rev. Enoch Mellor, M.A. The following gentlemen were likewise elected members of council :—Dr. Nevins, Mr. F. Archer, jun., Mr. A. Higginson, Mr. Picton, Rev. H. H. Higgins, Rev. W. Banister, Mr. Byerley, Mr. Redish, and Mr. Birchall.

Out of the Council thus elected, the following officers were chosen :—Dr. Nevins, Mr. Picton, and Rev. H. H. Higgins, Vice-Presidents; Mr. Byerley, Treasurer; and Mr. James Birchall, Honorary Secretary.

The Associates of the Society were re-elected, on the recommendation of the Council.

Mr. Alfred Fletcher and Mr. Thomas Dawson were balloted for, and duly elected ordinary members.

FIRST ORDINARY MEETING.

ROYAL INSTITUTION, October 15th, 1866.

The Rev. CHRISTIAN D. GINSBURG, LL. D.,
PRESIDENT, in the Chair.

This meeting was largely attended, it being known that the newly elected President would deliver his Inaugural Address on the occasion.

A communication was received from the Council, proposing that the following resolution should be entered upon the minutes, and a copy of it conveyed by the Secretary to Captain Anderson, one of the Associates of the Society :—
“That this Society offers to Captain Anderson its congratulations on the successful laying of the Atlantic Cable

On the motion of Mr. T. J. Moore, seconded by Mr. Higginson, this resolution was adopted, and carried unanimously.

The following address was also ordered to be drawn up, engrossed, and presented to Dr. Edwards, (late one of the Vice-Presidents of the Society,) on the occasion of his leaving Liverpool to reside in Canada.

TO JOHN BAKER EDWARDS, Ph.D., F.C.S.

Dear Sir,—On behalf of the Liverpool Literary and Philosophical Society, of which you have for so many years been an active member, and occupied the honourable position of Vice-President, we humbly wish you prosperity in your new sphere of labour. Our society will long remember your beautiful experimental illustrations, and the readiness with which you have imparted information on the most recent philosophical discoveries, and exhibited the most novel and interesting experiments which were occupying the attention of scientific men in London. But we trust that our loss will be the gain of those amongst whom you are about to dwell; and we sincerely wish you success.

CHRISTIAN D. GINSBURG, LL. D., President.

J. BIRKBECK NEVINS, M. D., Vice-President.

J. A. PICTON, F. S. A.,

HENRY H. HIGGINS, M. A.,

ISAAC BYERLEY, F. L. S. &c., Treasurer.

ALFRED HIGGINSON, M. R. C. S.

WM. BANNISTER, Ck. B. A.

THO. J. MOORE, Corr. Mem. Zool. Soc., London.

F. ARCHER, B.A.

J. C. REDISH.

ARNOLD BARUCHSON.

JOHN NEWTON, M. R. C. S.

WILLIAM A. UNWIN.

REV. ENOCH MELLOR, M. A.

JAMES BIRCHALL, Secretary.

A large number of donations was received, and thanks passed to the donors.

Mr. T. J. MOORE brought before the notice of the meeting the following recent additions to the Derby Museum:—A splendid specimen of Sea-fan Coralline, from the coast of Madeira, collected and presented by J. Yate-Johnson, Esq., Corresponding Member of the Zoological Society of London. This splendid Coralline is more than three feet in height, beautifully branched, and of a brilliant red colour. It was discovered by Mr. Johnson in 1862, the original specimen being deposited in the British Museum, and described by Dr. Gray in the *Annals of Natural History* for August in that year, under the name of *Paragorgia Johnsoni*. Mr. Johnson has for years contributed largely to the Derby Museum from the fauna of Madeira. A fine mounted skeleton of the Dolphin (*Coryphæna hippurus*), of large size, from the North Atlantic, with the skin of the fish also preserved, thus showing the relation of one to the other. This had been captured, prepared, and presented by Captain John Walker, ship *Trenton*, Associate of the Society, as also were several other marine specimens, forming a part of the third important collection received from that gentleman within the last twelve months. A very interesting series of marine specimens collected by Captain Whiteway, ship *Annie Chesshire*, Associate of the Society, including a splendid specimen of the *Spirula*, one of three taken in one haul of the net, in about lat. 19 deg. North, long. 22 deg. West. The capture of this singular little chambered shell, with its animal, is a circumstance of extremely rare occurrence; indeed, although the shell is widely spread through the ocean, and was known and drawn by Lister in the seventeenth century, a specimen with the animal at all approaching to perfection was not obtained till 1845, when Dr. Gray described, in the *Annals of Natural History*, one

obtained on the coast of New Zealand by Mr. Percy Earl, by whom it was forwarded to the late Mr. Hugh Cuming. Singularly enough, a *Spirula* with a damaged portion of the animal had formed part of the second collection received from Captain Walker, and was taken in lat. 25 deg. 42 min. North, long. 21 deg. 38 min. West. This specimen, the first received at the Museum, and pointed out by Mr. Marrat, was also exhibited. The *Spirula* belongs to the same order of shells as the Nautilus and Argonaut, but is of small size and enveloped in the body of the animal.

The President then read his Inaugural Address.

INAUGURAL ADDRESS.

GENTLEMEN,

Both for your sake and my own, I could have wished that the custom for the newly elected President to read an Inaugural Address might sometimes be dispensed with. For the last six months I have been engaged in carrying through the press a work in an Oriental Language, which not only keeps me daily between six and seven hours writing at my desk, but absolutely requires my presence at the printing office, among the compositors, for three or four hours every day. You will, therefore, see that, with at least ten hours a day of mental labour pre-occupied, I could not well compile such an opening address as leisure might have enabled me to do, and as is becoming such an occasion. Having made this apology, which I deem due to you, I shall now proceed to read the few desultory remarks I have jotted down.

The great aim of the Literary and Philosophical Society is, or ought to be, the intellectual improvement of its members, and the benefit of the town in which we live, by the periodical communication at our sundry meetings of such literary, philosophic, and scientific intelligence, as cannot easily be obtained by every one, without great sacrifice of time and labour, and without possessing that special training, peculiar bent of mind, and those mental powers, that love, capacity, and assiduity for research, which are neither possessed nor coveted by all.

Taking for granted, from the Proceedings of past years, that the members possess the necessary qualifications for their self-imposed and highly important task, it does by no

means follow that the Society, as a matter of course, has been, or must be, successful in its aim. Success does not depend entirely upon the attainments of its members. Unless those of our fellow townsmen who, through uncontrollable circumstances, cannot join our ranks, read our Transactions, sympathise with our efforts, and aid us in our endeavours, our exertions must necessarily be crippled. There are, therefore, two essential conditions necessary to our success, and to our occupying a position among the learned Societies of England and Europe, worthy of so large, populous, and distinguished a town as Liverpool. First, learning, research, and industry on the part of the members of the Society, the results of which must be communicated at our periodical meetings, and carefully embodied in our Transactions. And, second, a sympathising community, ready to listen to our communications, and willing to aid us by the means at their disposal in promoting the extension of literature, philosophy, and science, in the town in which we live.

In glancing at these two points, and in endeavouring to show how they might be acted upon and improved, I find it necessary to discuss the second first. I shall therefore advert first to the inhabitants of our town, who ought more especially to help us, whom we ought primarily to benefit, and to whom we principally look for the recruiting of our ranks.

People, otherwise engaged than in buying and selling, in going to the counting-house and on the exchange for the sole purpose of making money, in order to obtain the comforts and luxuries which money can procure, are often doomed to hear it declared, by some of the most distinguished merchants in our town, as if it were a matter for boasting or congratulation, that Liverpool is not a scientific, literary, or philosophical place. That this is only too true, the most

enthusiastic admirer of Liverpool, of its world-wide commerce, of its charitable institutions, and of its local government, will readily admit. As long as we have no aristocracy in Liverpool, no separate class of literary and scientific men, to make men of business feel that the mere possession of a quantity of money is no passport to the higher classes of society; and as long as people find that the length of the purse is the standard of the man, that money answereth all things, and that it secures for them honourable membership of the local government, in spite of an utter want of the very rudiments of education;—all attempts to diffuse science and literature, all endeavours to swell the ranks of our members, will be and must be a most difficult task.

As some may, peradventure, think that this is an exaggerated statement, let me advert to what I myself have experienced. Once upon a time, I visited a gentleman in the neighbourhood of Liverpool, who is one of the most distinguished and scientific members of the Literary and Philosophical Society, and who, among other things, showed me a very beautiful collection of shells. No doubt his scientific classification of them, and his lucid explanation of their respective histories, produced in me an enthusiasm for these charming specimens of natural history which I had never experienced before, making me almost covet the graceful forms of these shells, and look upon their brilliant and variegated garments as coats of many colours, wherewith the benign Father of the Universe has clothed so many Josephs.

On my returning to Liverpool, I happened to meet in the railway-carriage one of our wealthy merchants, and, of course, spoke to him with enthusiasm about the shells. He first asked about the number constituting the collection, and then the probable cost of a shell. Thinking that he made these enquiries because he wanted to buy some, either for his

sons or to present to a public institution, I told him my friend had informed me that his own were not very costly, but that he had occasion to make a catalogue of another collection, in which there were some shells worth from £30 to £70 each. Whereupon this merchant exclaimed, "Excuse me, what a foolish man your friend must be to spend his money in little fish-bones, one of which costs nearly £3 a year." Yet this very gentleman gives no less than ten grand dinner parties during the season, each one of which must at least cost about £30, thus amounting to about £300, at which more costly fish-bones are consumed, and which leave no other pleasant or instructive reminiscence behind than head-aches and the drinking of soda water on the following day.

Another very wealthy merchant, asked me one day, in an exceedingly distressing tone of voice, what he must do to cure his son, who shows no disposition for business, but will stick to books, and is very anxious to go either to Oxford or Cambridge. The gentleman, who has only two sons, and is rich enough to make a dozen children independent, added, by way of explaining to me his anxiety, "You know that science and literature are a poor pay."

This estimation of scientific and literary labours by pounds, shillings, and pence,—the question put by men of business to the philosopher, the man of science or of literature, who, with an ecstasy to which buyers and sellers on 'Change, in the moments of their greatest commercial prosperity, are utter strangers, describes the new discoveries he has made in the laws of mind or matter—"How much will it bring you in a year?"—I say this attempt to measure by money's value mental victories, which disdain the spoils of filthy lucre, has had its mournful effects. The training of our young men is what is termed simply commercial, which is merely a euphemism for money-making. The youth is

sent to a public school at the age of twelve or fourteen, when, as a general rule, he neither understands the importance of, nor cares for, learning. At the age of eighteen, the very time when he may begin to appreciate the value of mental acquirements, he is taken from school, and placed in an office. Henceforth, in nine hundred and ninety-nine cases out of a thousand, scientific or literary studies are at an end. An hour a day over the newspapers, and about half-a-dozen exciting novels a year, perhaps with a weekly or two, a fortnightly, a monthly, or a quarterly,—this constitutes the whole cycle of study.

The independent tone of conversation which the young man acquires, in the office, or in the dining-rooms to which he resorts for refreshments, and the presumption that because he has been in a better public school, and, perhaps, remained in it twelve months longer than his father, he must know more than his seniors, almost preclude the possibility of his continuing to rear a scientific or literary structure upon the basis laid at school. With his hands in his pockets on the flags, he soon finds that money is the criterion by which he will be judged in a mercantile town. In a commercial crisis he delights to talk about So-and-so having been "cleaned out;" and when he hears of the death of his companion's father, the first question he asks is, "How did the governor cut up?" Such young gentlemen, and there are plenty of them, cannot endure to become members of the Literary and Philosophical Society. They prefer to go to inferior places, where they can rule and teach, rather than to a society where they will have to submit to learn. This, to my mind, and this alone, can account for the fact that Liverpool, which, according to the Blue Book on Electoral Returns laid before Parliament last session, contains 482,409 inhabitants, a town which boasts to be the second in the empire, is not a scientific or literary place. The sympathy, therefore, which

we receive from the community at large is exceedingly little, and the number from which we wish to recruit our ranks, in order to keep up the value of our Transactions, is very limited.

With such a condition of things before us, the question naturally arises: What is the Literary and Philosophical Society to do in order to maintain its corporate existence in a vigorous and active condition? and what are the best means to be adopted to foster independent and original research in the regions of science, and to promote the extension of the boundaries of learning? This is the second point which I intend to bring before you this evening.

That our task is not altogether hopeless, the Transactions of our own Society, as well as the Proceedings of the kindred learned Societies in this town, show, beyond the shadow of a doubt. That there are among our merchants both old and young men, who possess the vigour of intellect, keenness of perception, originality of mind, and firmness of purpose, which are essential elements in exploring the still untrodden paths of knowledge, and in extending the boundaries of science, and which, if properly cultivated, would make them an ornament to any learned Society in the world, there is equally no doubt whatever. This is but perfectly natural; since many of the mental properties which are requisite for animating and working a gigantic mercantile organisation, whose head and heart are scheming and planning in one place, and whose arms embrace the whole world, are the very qualifications which preeminently fit them to be pioneers to the armies who start on scientific explorations.

Our duty as the Literary and Philosophical Society seems therefore obvious. The means to be adopted for making such brilliant and valuable qualifications subservient to the cause of science and literature appear to be within reach. Our merchants, like all true Britons, possess a noble ambition.

With a commendable sensitiveness, Englishmen do not like to be beaten by foreigners in that which intellect or money can procure, and which exalts a nation to the first position in science and literature among the nations of the earth. Now I am inclined to think that a Paper read before the Literary and Philosophical Society, pointing out the departments of learning in which Continental mercantile communities, who possess no greater intellectual powers and less material wealth, have surpassed us, the ambition of our Liverpool merchants would be touched, and they would determine not to be beaten by their inferiors.

Take, for instance, Classical Literature. I hardly need tell you that our best guides to it are either translations of, or based upon, the works of Germans. Our best Greek Lexicon, which is that by Liddell and Scott, is founded upon Passow, "without whose Lexicon, as a base to work upon," the editors themselves frankly declare in the Preface, "our own would never have been compiled." Our Latin Dictionaries, by Scott, Smith, and Andrews, are either entirely or partly reared upon Freund's gigantic Latin-German Dictionary. The best editions of our Greek and Latin classics, are those the texts of which have been most laboriously and scrupulously collated by Germans, and the notes of which are replete with the philological and antiquarian researches of these foreigners. You can hardly read a page of Smith's excellent Dictionaries of Greek and Roman Antiquities, Geography, Biography, and Mythology, without finding it abound with the labours of Continental writers.

Leave the department of profane learning, and glance at the domain of Sacred Literature. Here you would naturally think that we are monarchs of all we survey, seeing that we boast of a greater love for the Bible than any other nation, and that we send teachers to all parts of the earth, to unfold

its contents to all kindreds and nations and tongues. But what is really the case? We should in all probability still have been without a critical collation of the mere text of the Greek New Testament, but for the labours of Griesbach, Scholz, Lachmann, and Tischendorff, all of whom are Germans. The English annotations by Dr. Bloomfield, Professor Jowett, Dean Stanley, Dean Alford, and Bishop Ellicott, which accompany the Greek text of the whole, or portions, of the New Testament, embody, to a large extent, the exegetical labours of De Wette, Meyer, and a host of other German writers.

As to the Old Testament, for its exegesis and interpretation, we are dependent upon foreigners to a still greater extent. It could not be imagined by ordinary students, yet it is perfectly true, that there has not as yet been published a correct and critical edition of the simple text. Far more labour and research have been bestowed upon the revision of the texts of any of the standard Greek and Latin classics than upon the Old Testament; and the little that has been done to it has been done by foreigners. The very keys to the syntax of the language, and the meaning of the words which we use in our public schools and universities, are translations from the Germans. What student of the original can dispense with Gesenius' and Ewald's Grammars, or with Gesenius' and Fürst's Lexicons? The few critical commentaries on different portions of the Old Testament, which are really critical and exegetical, are either direct translations from the German, or abound on every page with quotations from German writers. Yet, with all the help which we have invoked from Germany, I submit, without fear of contradiction, that ninety-nine students out of a hundred are perfectly unable either to decipher or to account for the hieroglyphic glosses which are to be found in the foot-notes

of almost every page of the Bibles published by the Bible Society, which boasts that it publishes the pure Word of God, without comment or note.

The reason why I have selected classics and textual criticism to shew how much we are behind foreign nations, is because I have spent my life in these departments of literature, and can therefore speak more confidently about them.

Now, I ask, shall we, as Englishmen, with intellectual powers quite as great as those of any other people, and with a share of practical common sense larger than that of any other people, allow ourselves to be outdone by foreigners, and submit to beg, borrow, and steal from German writings? Has Liverpool, the second town in this liberal and great empire, no honour at stake in not contributing to the progress of science and literature? Will our wealthy merchants continue to tolerate the appellation given to us, that we are a nation of shop-keepers? Let us shew that we, who have outstripped the nations of the earth in the race of commerce, are now determined to be in advance of them in the pursuit of knowledge.

Like Athens, Alexandria, and Rome of old—like Venice and Florence in the middle ages,—and like London and Paris of the present day, let Liverpool show that a great commercial town can also be a great centre for art, science, and literature. It is by the position we occupy in the domain of knowledge, and not by our success in business, that future generations will remember us. When the names of many a wealthy merchant shall be forgotten, when the mansions which they have built shall crumble and be swept away, the name of Roscoe will be emblazoned indelibly upon the heart and mind of every educated Liverpoolian, and his literary productions will survive as the most abiding and beautiful monuments in our town.

Gentlemen ! fellow members of the Literary and Philosophical Society ! whatever apathy others of our own townsmen may display towards the pursuit of Knowledge, we dare not, we will not, draw back. The recent discoveries and achievements in the various departments of science call upon us more than ever to be up and doing. The successful laying of the cable across the Atlantic, which now unites the two hemispheres, and enables them instantaneously to waft to each other the tidings of victories in the regions of knowledge ; the wonders daily disclosed to us by the two magic eyes of the telescope and microscope, which like the two faces of Janus, look in opposite directions, the one bringing heaven nearer to earth, and making the firmament declare the glory of God, and the other elevating the most hidden and insignificant beings into the beautiful scale of organisation, and making the earth show His handy-work ; the portions of the globe which for centuries concealed their inhabitants and produce, but which have recently been obliged to open their gates at the bidding of the scientific explorer ; the tracing of those rivers to their natural source, which for thousands of years were sealed from mortal vision ; the marvellous development of species, now tracked by natural historians ; the remarkable affinity of languages, established by the philologist ; the immortal spirit of nationalities, which has recently subverted thrones, and united different portions of the human family, long imprisoned by petty tyrants in separate cells, into a few grand nations, who will henceforth vie with each other in the development of commerce, art, science, and literature, and who will eagerly seek to gain victories in the regions of thought ;—all demand that our united energies should be renewed, if we would not be outstripped by others in the race of intellectual progress.

Fellow members of the Literary and Philosophical Society, we who have launched our little bark upon the great ocean of

science from the inhospitable shores of commerce, to trace the thread of life which binds the whole creation together, both materially and intellectually, let us not rest upon our oars till we have made such progress as shall do honour to our successors. And even if we cannot altogether bring to the surface this living thread which mysteriously encircles the universe, let us so thoroughly sound and buoy the ocean, that in future days not the "Great Eastern," but Great Britain herself, shall find it easy to haul up the cable.

SECOND ORDINARY MEETING.

ROYAL INSTITUTION, October 29th, 1866.

THE REV. C. D. GINSBURG, LL.D., PRESIDENT,
in the Chair.

The Rev. H. Stowell Brown, Mr. David Bell, Mr. Hugh Shimmin, Mr. Dadabhoy Byramjee, and Mr. Adam Elliott, were balloted for, and duly elected members.

Mr. Wood introduced Mr. Pennington, who exhibited and briefly explained a new mathematical instrument for the construction of hyperbolas, or any elliptic segment.

Mr. T. J. Moore exhibited a recently acquired head and horns of a very rare stag inhabiting Pegu, Siam, and the neighbouring portion of the Malayan peninsula. It is the *Sungnai*, or *Singnai*, of Munnipur, the *Thamine*, of Burma, and the *Cervus (Panolia) Eldii*, of zoologists. It was first made known, in 1841, in the *Calcutta Journal of Natural History*. The venison is stated to be brought to the provision bazaar at Rangoon with that of other deer (*Sámur*, hog deer, and *Muntjac*). It is a highly gregarious species, resorting to openings in the forest like the Indian *Bara Singha*. The horns are remarkable for their recumbent form, and, though the most easily and most generally preserved of a hunter's spoils, are, as regards this species, exceedingly rare in collections.

Mr. Moore then announced the death of Mr. William Tyrer Gerrard, which took place in July last, from yellow fever, at Tamatave, Madagascar, in the thirty-fourth year of

his age. Mr. Gerrard was a native of Knowsley, near Liverpool, and united to very studious and reserved habits a most ardent love of nature, to indulge which he visited Australia, then proceeded to Natal, made large collections there, particularly of plants, of which he discovered very many new species and new genera. He made an expedition into the Zulu country, in which he narrowly escaped with his life. In the spring of 1865, he proceeded to Madagascar, where he collected largely with such enthusiasm that he remained during the sickly season, when other Europeans left the island, and fell a victim to his ardent zeal in the cause of science.

Before leaving Natal he had sent to the Derby Museum a fine stuffed specimen of the Aard Vark of the Dutch colonists (*Orycteropus Capensis*), which was exhibited at this meeting by Mr. Moore.

The Rev. H. H. Higgins exhibited, on behalf of Dr. Turner, a MS. on leather, which being referred to the Chairman, he described as a portion of the Book of Esther, and not more than forty or fifty years old. The Book of Esther, he remarked, was read annually at the feast of Purim, in the synagogue, but, as printed books were not allowed to be read therein, such manuscripts as the one exhibited were common among the Jews, who preferred manuscript portions of the Scriptures to printed copies for their private use. Mr. Higgins also showed some specimens of rock from South Victoria Land and some islands off Cape Horn, collected by Mr. J. D. Hooker, of H. M. S. Erebus.

The following paper was then read : -

ON NURSERY TALES, AS ILLUSTRATING AND
FORMING NATIONAL CHARACTER.

BY

J. BIRKBECK NEVINS, M. D. LOND., AND V. P.

DURING a voyage which I made some years since into Hudson's Bay, I became acquainted with a chief of one of the tribes of Cree Indians, and travelled for some time in his company. He was an intelligent man; and as his tribe lived on the frontiers of Canada he had been accustomed to mix with the Canadians from childhood, and spoke English with ease and general correctness; though he evidently still thought in Indian, and translated into English, when he related the Indian nursery tales which gave origin to the present paper. They were the stories to which he had often listened with other Indian children round the wigwam fire, when he had joined in bribing some Indian granny by a piece of tobacco to tell them a story, "and now another, Granny."

These tales, possessing little of beauty and nothing of poetry, were interesting as illustrating Indian character, and in their striking want of resemblance to anything ever heard in an English nursery; and it has been an object of interest from time to time, to notice how the nursery tales of our own and of other countries are characteristic of the nation to which they belong. To illustrate this will be one object of this evening's paper. But there is another aspect in which we may look at nursery tales, and that one of very grave importance, viz., their influence in forming the character of the rising generation; for it needs no lengthened argument

to convince us of the extent to which the character of the whole life is dependent upon the lessons received in our earliest years ; of which, nursery tales form by no means the least influential part.

The tales which are most familiar in English nurseries are *Jack the Giant Killer*, *Puss in Boots*, *Cinderella*, *Tom Thumb*, *The Sleeping Beauty*, *The White Cat*, and *Jack and the Bean Stalk*. I omit those which have recently been introduced by Andersen into our nurseries, though many of them will no doubt appear as familiar to our children as the above are to us.

Of this list, it is remarkable how few are originally English ; for the most cursory examination of the story shews that *Puss in Boots* is of foreign origin ; and *Cinderella*, *The Sleeping Beauty*, and *The White Cat* also exhibit evidences of foreign extraction, to which we shall have to direct our attention presently.

If we take the most thoroughly popular and national of our English stories, viz., *Jack the Giant Killer*, and analyse it, we find it to possess the following features.—A simple farmer's son, in a remote part of the country, is a brave and hardy boy, but not remarkable for his beauty or his intellectual qualities, which are never mentioned in the story. By a very simple contrivance, which has more of hard work in it than of cunning, he gets a brutal giant into a pit, and splits his skull with the pickaxe with which he had dug the hole. The great men of the neighbourhood, *i. e.* the justices, give him a sword and belt, and dub him "Jack (his plain country name) the Giant Killer." After this adventure he falls into the hands of the giant's brother, who is himself a giant. He throws a noose over the giant's head from a window, as he is returning to the castle, and strangles him ; and then finding some ladies in a deplorable condition, who had been taken prisoners, he releases them, gives them

the giant's castle, and sets off again on his journey. After this he kills two or three more giants, who are represented as being Welshmen and great fools, and becomes possessed of certain magical weapons—a sword of sharpness, a coat of darkness, and shoes of swiftness. He kills some more blunder-headed giants, and at length destroys an enchanted castle; and having released a duke's daughter from captivity, and gained renown which spread so far as the court of King Arthur, the king, for the first time, appears in the story. He gives Jack an estate, and persuades the duke to give him his daughter whom he had saved, and they live together in a quiet jog-trot way "in peace and happiness."

The features in this story which illustrate its English character are very strongly marked. In the first place, the hero is a plain country youth, the son of a simple yeoman; a commencement which naturally arises from the Saxon element in our country. For amongst our Saxon ancestors it was, that the love of a freehold farm, however small, was so deeply implanted, and was considered so important, that we see its effect even to the present time, in the constitutional right to a vote for the county possessed by every freeholder of even so small an amount as forty shillings a year; a privilege which places him on an equality in a very important respect with the wealthiest landowner in the county, who possesses but his single vote, no matter what may be the extent of his domains. The love of free ownership was one of the strongest elements in the Saxon character; and Blackstone's account of the devices by which William the Conqueror and his successors tried to overpower it is full of interest. The contest continued, with varying fortunes on one side and the other, for several centuries, and was not finally terminated until some time after the accession of Charles II.

We see, therefore, that it is perfectly natural, and strictly

national, that the hero of our tale should be a simple yeoman's son, who, as such, would stand on an equal footing with the best, but would not be either very elegant or very accomplished, and whose muscularity would probably be his chief attribute. Another English nursery tale in fact draws his portrait —

"Mother Goose had a Son, a plain looking lad;
He was not very good, nor yet very bad."

The next circumstance to be noticed is, that the giants are all either Cornish or Welsh; and they are all described as being coarse brutes and great fools. The national feud between the Saxon invader and the ancient Briton, whom he had dispossessed and driven into these remote parts of the island, is kept in memory; and the clever conqueror is the Saxon "Jack;" the stupid fool in the story is the remnant of the dispossessed and despised race of Britons.

The next national peculiarity in the story is the dignity conferred upon him by the justices. The principle of local self-government, which was so strongly developed amongst the Saxons, and which is so jealously retained in England to the present time, is here brought into play; and the justices confer upon him, *proprio motu*, and without leave or orders from a higher quarter, the dignity which is the highest he could covet, or they would think of conferring. He is girded with a champion's belt, and though still dubbed simple "Jack," it has the honourable inscription of "Giant Killer" added.

He now proceeds on his adventures, and a new national feature is introduced into the story, for he finds some prisoners in one of the giant's castles. Now, no grand epithets are bestowed upon them: they are not princesses in disguise; they are not the most lovely and accomplished of women, such as the world rarely sees; they were simply "poor ladies" whom the Giant had imprisoned, or, according

to some versions, "hung up by the hair of their heads;" and Jack, with the simple Saxon respect for woman as woman (a national characteristic which is noted by Tacitus and other early historians), sets them at liberty, and leaves them in possession of the castle, without telling us whether they were dark or fair, plain or beautiful. It was enough that they were women to ensure Jack's loyalty and services.

At length we come to a history of enchantments which he overcame; but although something of the marvellous is almost indispensable, the magical element forms but a small portion of the story; and now the climax approaches. Jack's exploits have become known at the court of King Arthur, who appears on the scene at the end, and not until the end, of the narrative. Royalty, so far from forming an essential feature in the tale, might almost be left out without its suffering; for although King Arthur does bestow upon Jack an estate, and persuades the duke to marry his formerly captive daughter to Jack, her deliverer, he immediately disappears from the scene; and instead of the hero and his bride residing in splendour at court, we are told that they settled down in the essentially unromantic condition of "living in peace and happiness all their lives;" to be the squire and lady of the parish being the very utmost extent of their dignity.

When we analyse the other English nursery tales, *Tom Hickathrift*, *Sir Guy of Warwick*, or *Robin Hood*, we find these features belonging to them all.

In all we see the remains of the old Saxon element in the national character, amongst whom the king was but a chief, leading a number of voluntary followers, who submitted to his bidding whilst it pleased them, but whose power over them was extremely limited, and who occupied but a very insignificant place in their thoughts.

There is indeed one nursery tale in which the king is the

first person in the story; but even this illustrates in a curious manner the national feeling about royalty.—

“The king was in the counting house,
Counting out his money;
The queen was in the parlour,
Eating bread and honey.”

Now this is so far from being a burlesque, that we find illustrations of it every day, even at the present time; for although there are plenty of politicians who can throw a stone at George III., for qualities which he possessed, and others in which he was deficient, there is no English king who has occupied a higher place in the genuine affections of his people; and the principal elements of his popularity were his own affection for his nurse, his domestic qualities, his refusal to allow fine flour to be used at his own table whilst the nation was suffering from want of bread, and the simplicity of character which was indicated by his wondering question, how the apples were got into the inside of the dumplings. And when the name of our own beloved Queen is the subject of a toast, it is not the wide extent of her dominions; it is not the victories that have crowned her arms, in China, in India, or in the Crimea; it is not the character of her legislation, nor the wealth with which it has pleased Providence to bless this country under her rule, that are the subjects expatiated upon by the speaker; but it is her affection for her husband; and it is the manner in which she has brought up her family; it is her tears as a woman for the sufferings of “her poor soldiers,” and her visits of sympathy to their hospitals; these and such as these it is—womanly and domestic traits—which have given her such a place in the English heart, as the most splendid victories and the most brilliant court would be powerless to procure, if unaccompanied by those domestic and Saxon

habits, which the above homely rhymes caricature, it may be, but still not untruthfully shadow forth.

FRENCH TALES.

When we turn from our own nursery tales to those of France, we find the difference strongly marked, even from the very first words ; for whilst our own stories begin with "Once upon a time there was an honest farmer, or a poor labourer, who had a son," &c., the French stories, with few exceptions, begin with "Once upon a time there was a king," and then follows that he was so great, &c., or that he had a daughter so beautiful and so perfect, &c., that nothing in the world could be compared to her. And whilst in the English tales the royal personages might be entirely removed from the story, and their absence would scarcely be noticed, in the French the whole plot and interest turn upon their fortunes ; and every thing else is unimportant except in its relation to the royal hero or heroine. The stories which are most essentially French in their origin and character, and are still published for the benefit of French nurseries, are the *Contes des Fées* of Perrault, Madame D'Aulnoy, and Madame Beaumont ; and we will now analyse one of them, as we did in the case of *Jack the Giant Killer*. If we take the story of *Gracieuse and Percinet*, we learn that once upon a time there was a King and Queen, who had a daughter who was so incomparable for her beauty, and her *esprit*, and her sweetness, that she was called Gracieuse. There was never a morning that she had not a beautiful dress of brocaded gold, or of velvet, or of satin, and she spent all her mornings with learned persons, who taught her all sorts of sciences until it was time to lunch, when they gave her basins full of sugar plums, and more than twenty different kinds of jam ; so that every body said she was the happiest princess in the world.

At length the Queen, her mother, died ; and to dissipate the King's grief, he was ordered by his physicians to hunt and amuse himself ; and one day, being very hot, he saw a grand castle, to which he repaired to rest himself. This castle belonged to Grognon, a frightfully envious and ugly old Duchess, who invited him to go into the coolest part of it, which was a cellar, containing two hundred tuns of all sorts of wines ; and she asked him which he liked best. The King replied, Champagne ; so she tapped a cask, when out ran a bushel of louis d'ors, and she tapped another, when so many pearls and diamonds ran out that the floor was covered. So then she told the King that all the two hundred tuns were filled with gold and precious stones, and he should have them all if he would marry her and leave his daughter entirely in her power ; and as the King loved money above all things, he agreed to do so, and married her. Then follows a long account of how the bride got herself up with a false eye, and a high heel, &c., and her toilet is described with the greatest minuteness.

Meantime the Princess had retired into the garden to lament her fate, when a page approached her and told her that he was a Prince in disguise, and had come as a page to gain her love, by the services he could perform, now that the King was going to marry her enemy ; for a gift from a fairy at the time of his birth would enable him to be of great use to her. The Queen, being now married, commenced her persecution of poor Gracieuse, by inflicting upon her the most degrading personal chastisements, even to floggings, of which the King took no notice, leaving the fate of his daughter entirely in her hands, and merely replying, when told that she was in danger of death from her fury, " I have given her up to her new mother, and she must bear whatever she pleases."

The Princess, soon after this, is sent by the tyrant into a

great and impassable forest, where wolves are specially mentioned as abounding. In this dreary region her faithful prince, Percinet, finds her, and takes her in safety to the fairy palace inhabited by his mother and sisters, the walls of which were of crystal, and where everything was of the most splendid description. Here she remains for a time; but at length she returns to the city, led there by affection for her father, who had been told she was dead, and lamented her bitterly. He soon, however, gives her up again to the power of the Queen, who inflicts upon her new evils, and subjects her to gross indignities, by clothing her in humble garments, &c., the particulars of which are given with almost as much minuteness as those of the splendid clothes described at first; the mean apparel being apparently thought as great an element in the adversity, as the gay clothes had been in the prosperity, of the Princess. From all this misery her devoted lover, Percinet, releases her by fairy aid; and their marriage is celebrated with the greatest magnificence. All the fairies, for a thousand miles round, came in the most sumptuous chariots: some drawn by swans and some by dragons, some on clouds and some in globes of fire. At the same time, the fairy who had assisted the Queen in all her iniquities came also, not knowing what it was all about; and having obtained pardon for herself, she flew off to punish her accomplice, and compounded for her own sins by twisting the Queen's neck, before her guards could interfere to prevent it.

Such is the frame-work upon which nearly all the stories that are genuinely French appear to be constructed; and it is curiously illustrative of French history and habits of thought. The king is the centre of the story, the source of all its action, and the person whose will is undisputed law. *L' état c'est moi*, is stamped upon the face of every one of them. And when we take them up, one after another, we

scarcely wonder at Louis the Fourteenth's estimate of kingly power ; and are reminded continually of an anecdote told of his minister, the Count de Guiche. " On one occasion, the king was speaking about the extent of royal authority, when the minister ventured to suggest that there might be circumstances that might limit its extent, which the king utterly denied. ' If,' said he, ' for example, I should desire you to throw yourself head foremost into the sea, it would be your duty to do so instantly.' The minister at once began to leave the royal presence ; and when the king enquired where he was going : ' To learn to swim, sire,' was the reply."

Now this is scarcely a caricature upon the tenor of some of these stories ; but there is none that illustrates the theory so well as *The Fair One with the Golden Locks*. Like all other Princesses she was the most beautiful, and so forth, that the world had ever seen ; and when royal suitor after suitor had been sent away in despair, a youthful ambassador named Avenant is sent by his King to see if he can overcome the reluctance of the fair one. She is enamoured of the ambassador, and lends a more favourable ear than usual to his suit for his royal master ; but, notwithstanding this, she imposes upon him, apparently in very fickleness and wanton heartlessness, tasks which had over and over again proved fatal to the suitors ; and when his reply was, " Madame, I am very desirous of obeying you," and he set off on one of his perilous expeditions, she was then astonished, and said a thousand things to hinder him from going. He returned, however, in safety, and successful. Then again she sent him on a still more dangerous errand, and one which was now without excuse, except that of vanity. He was to fetch her some of the water from an enchanted well, which should preserve her beauty from fading. " Madame," said he, " I go to seek for what you desire, but with the certainty that I shall not be able to return ;" but the Princess would not

relinquish her design. Every one who saw him set off, said : “What a pity ! to see such an amiable youth go to certain destruction. Why will the Princess demand impossible things ?” But he set off without saying a word, though he was very sad.

Another characteristic feature in these stories, is the important part which the queens play in them—and generally for evil. And this also has an historical interest ; for it is familiar to readers of history, that, whilst the Salic law prevented a woman from occupying the throne of France, there are few, perhaps no, European kingdoms in which the influence of women about the sovereign has been so potent as in that country ; and we shall not find that the tale has departed from the reality, in assigning some unkingly reason as the cause for this influence, and in pourtraying it as generally bad.

A striking characteristic of the French tales is the contrast so often drawn between the Beauty in the story, who has no brains, and the Fright, who is so clever as to be the favourite of every one. One, viz., *Riquet with the Top-Knot*, turns entirely upon this point.—Once upon a time there was a Queen, who had a son so ugly and so ill made that it was very doubtful whether he possessed a human form ; but a friendly fairy consoled his mother by saying that he could not fail to be loved, he should have so much intelligence and wit. As a consequence of this promise, he could scarcely talk before he said a thousand things in the pleasantest manner possible, and he shewed so much of *spirituel* in all his actions, that every one was charmed in spite of his frightful appearance.

Soon after this, the Queen of a neighbouring kingdom had two little daughters, one of whom was fairer than the day ; whilst, to moderate her mother’s pride, our old friend, the fairy, said she should have no wit, and should be as

stupid as she was beautiful. The second daughter was extremely ugly and coarse-looking, but the fairy promised her so much intelligence that scarcely any one should notice that she wanted beauty.

And so it came to pass. For as they grew up, the younger always possessed the advantage over the elder; for, though every one at first drew towards the eldest, to gaze upon and admire her beauty, they found her so stupid, that they quickly left her to listen to the thousand agreeable things said by the younger: so that in less than a quarter of an hour the eldest was deserted and the youngest had a crowd of admirers.

The story then goes on to narrate the varying fortunes of the different characters, and brings the spiritual ones at last to gain beauty by the force of the love which their good qualities inspired.

The elegance of taste, so proverbial amongst the French, is another national feature, evidenced by the prominence given to descriptions of the splendour of the palaces, the richness and variety of the dresses, the magnificence and detailed mention of the jewellery, and, what is not undeserving of notice, the variety and excellence of the cooking. Whilst hasty-pudding is the breakfast in *Jack the Giant Killer*, and the "lumps of suet, as big as my two thumbs," are immortalised in the description of King Arthur's pudding, the amount of the sugar plums, and the twenty different sorts of jams, supplied for the Princess Gracieuse' lunch, may well make the infantine mouth water; and the omelette prepared by another princess, in the *Peau d' Ane*, is one that might excite the desire of an older hearer or reader.

Another feature in these stories deserving of note, is the frequent introduction of great forests, and the constant mention of wolves as a matter of course, which would be entirely misplaced in any English story of a later date than

that of the early Plantagenets. It is, however, a perfectly natural feature in a French story; and when we have noticed its constant occurrence in these tales, we find, without surprise, that *Little Red Riding Hood* is a natural French tale, and is only adopted into this country; and we see that the wolf's presence would not appear to her such a strange thing as it would to an English child.

Having these characteristics in our mind, we shall readily see that *Puss in Boots* is not an English story; for, in the first place, the title "Marquis," which the cat gives to his master, is essentially un-English in a story; and the youth's origin as a miller's son is carefully concealed by his faithful servant, who from the very first, presents "My Lord Marquis of Carrabas' compliments to the King;" the king and the nobleman being the proper people to be in a story—not an humble hero like a miller's son.

Again, the *White Cat* betrays its French origin in every part of the story. The old King is afraid of his sons wishing to supersede him—which reminds one of Kean's inimitable rendering of Louis XI.'s rejoinder, "I know what a Dauphin can do. I was a Dauphin once,"—so he promises to give his kingdom, not to the most worthy, but to the one who can best fulfil some flimsy wish he had formed. And when at last the cat resumes her proper form, she informs the old monarch, in the most elegant manner, that she will not take his kingdom in marrying his son; but as she has six kingdoms of her own she will give him one of them, and give one to each of his sons, and keep the remaining three herself; the nations and people to be transferred being the last thing to be thought of or consulted in the transaction.

ICELANDIC TALES.

We will now leave the fanciful and brilliant stories of sunny France, and turn to those of the gloomiest and most frightful of the inhabited parts of the earth—Iceland; and in them we meet almost universally with an element, which is, we may say, entirely absent from the nursery tales of France and our own country. There are very few Icelandic tales in which religious services do not form as natural and essential a feature, as the brilliant palace and the accomplished princess of French tales, or the rough strength and the faithful though it may be unpolished respect for women, of the English stories. In reading the tales of that island, where cold and desolation appear to have taken up their natural abode, we feel that they express its sense of the necessity for constant dependence upon a supreme protection, which in our own more favoured land is too apt to be forgotten.

The same feeling is indicated in the periodic cry of the Norwegian watchman, as he makes his nightly rounds among the houses, which, being built chiefly of timber, are peculiarly liable to fire, the danger from which is nightly indicated in the words, “Except the Lord keep the city, the watchman waketh but in vain”—words that would sound strange in the mouth of an English night policeman.

We will now take an Icelandic tale, and analyse it in a similar manner with those already passed in review; and the story of *Hildur, the Fairy Queen*, is one of the most characteristic for our purpose.

HILDUR, THE FAIRY QUEEN.

A Bachelor once had a Housekeeper, named Hildur, who was unknown to everybody, but was an excellent manager, and kind and obliging to all.

Everything thrived with the farmer, except that he could not get a shepherd; for the shepherds had been found dead in bed on Christmas morning so repeatedly, that at length the farmer would not ask any one, nor would any man offer, to be his shepherd in future. One day, however, a likely looking man did offer his services, and continued his offer, notwithstanding the farmer's objection on the score of the risk he ran.

It had been noticed with surprise by everybody that Hildur never went to church on Christmas Eve, a time when every one in Iceland makes a point of going, even though the church should be many hours' journey from their place of residence. She always assigned as a reason that she must stay at home to prepare the Christmas feast.

On the first Christmas Eve after the shepherd had thus engaged himself, he returned home from his work too late to accompany the others to church, so he went to bed and pretended to go to sleep. In the night he felt Hildur approach him quietly, and try to put a bit between his teeth, which he allowed her to do, still pretending to be asleep, though he felt sure it was a magic bridle.

Hildur then led him out, mounted his back, and rode off at a quick pace to a great chasm in the mountains, where she dismounted, and left him, descending herself into the chasm. As soon as he was able, he descended also, and followed her unseen, by the aid of a stone of darkness which he took from his pocket. He followed her to a splendid palace, where she was met by a man dressed in purple and gold, who called her wife, and brought two children with him. She was then clothed also in royal robes, and received the greatest attention, which, however, did not appear to lessen the melancholy that her manner exhibited.

After a time she dropped a ring whilst caressing the children, and the shepherd quickly picked it up unperceived.

It was soon missed and sought for, but could not be found ; and as morning approached, Hildur took a sorrowful leave of her husband and children, and left the place. The shepherd hastened before her to the chasm in the rock, replaced the bridle in his mouth, and carried her back to the farm; still under the appearance of being asleep. On his return she laid the shepherd quietly in bed, unbridled him, and returned to her own room.

On Christmas day the household were all anxiety to know whether this shepherd also was dead ; but to their delight he met them as usual, and when asked if anything had happened, said " Oh no ! he had only had a wonderful dream," and he told the adventures of the night as if it had been a dream. " If you tell the truth," said Hildur, " shew us some token to prove it," upon which he took out the ring, and held it up before her. She then invoked blessings upon him, for having broken the charm by which her cruel fairy mother-in-law had bound her, for marrying the fairy king, who was much her superior in rank, as she was only a pretty fairy maid of low degree. The fairy had condemned her in revenge to pass all the year upon earth, except one day, and to kill some man every Christmas night, until she should be found out and executed for it ; unless she could meet with some one courageous enough to follow her into fairyland, and shew some proof of having done so. This brave man had broken the charm, and released her from the power of her mother-in-law ; and as she had been unable to help killing the shepherds, she hoped it would be forgiven. She then disappeared, and has never since been heard of.

The shepherd soon after married, and was universally prosperous, which he always attributed to the good offices of the Fairy Queen, Hildur.

In examining the special features of this story, we notice how completely it is assumed as a matter of course that

every body goes to church on Christmas Eve ; for it was the fairy's absence which excited so much suspicion respecting her. And another feature in the story contrasts curiously with some of the French tales, as told in the original form. The hero of the tale is a Bachelor, and his Housekeeper lives in his house for an indefinite period without the story giving a hint that evil was thought of in consequence. This is a common feature in these tales, and indicates a moral tone of a high character, when such a circumstance is not apparently thought of as an occasion for scandal. Now, in some of the French tales, the distressed heroine knows that if the hero could but be present, he could release her from her difficulties ; but the conflict in her own mind is described in touching terms, before she can resolve to invoke his presence, or almost to wish for it, lest evil should be said or thought. The simplicity of the Icelandic narrative is not the least pleasing feature that it presents.

It is curious to notice how many of these tales dwell upon the wide-spread glorious green plain or valley, upon which the wanderer or the enchanted person comes unexpectedly, after making his way through difficult and frightful chasms in rocks, and such obstacles as beset the Icelandic traveller. And we trace this portion of these stories to the belief of every Icelanders, that the Thing Valla is the most lovely and verdant plain in the whole world ; and the desire which is said to possess them all to see this beautiful spot at least once in their lives. The absence of natural beauty from their daily life seems, therefore, to be compensated in the world of fancy, by the lovely green, and the delicious plain which opens upon the traveller's eyes in the regions of fairy life.

Very few of the Icelandic fairies appear to be malicious, and most of them are represented, like the one in our story, as hard-working and kind-hearted. Sometimes, indeed, they are wicked enough ; but when this is the case, a parson, or

the intended victim, is generally made to outwit them, as in the following story:—An old hag carried off a boy on *Sunday*, and told her daughter to boil him into soup, whilst *she went to church* to invite the guests. The girl was stupid, and the boy said he would show her how to kill him, if she would lay her head on the block; on which he cut it off, and put her into the pot instead of himself.

The religious aspect of this story is curious. The hag goes to church to invite her guests to a dinner of boy-soup. In many of the Icelandic tales a fairy man marries a natural woman, and they go to church regularly, and as much as a matter of course as any one else; and the fairies themselves often have clergymen and services amongst them.

GREEK, ROMAN, AND HEBREW STORIES.

The nations whose nursery literature we have just examined are still in the full tide of life and activity; but those to which we shall now turn our attention have, as nations, departed from the active scenes of life, though their influence is still felt, and will continue to be felt, while the human race remains upon the earth.

But here it may be necessary to anticipate an objection which will not be unnatural.—“Is it not occupying new ground, to speak of the literature of such nations as the Hebrew, the Greek, and the Roman, when the subject announced for consideration is ‘NURSERY TALES’? Are we justified in degrading the truths of the one and the myths of the other nations to the level of mere nursery tales, which appears to be done in speaking of them at the same time, as if they were classed together?” The reply to this objection is, that it is not new ground; and that from the point of view in which we regard nursery tales, it is no degradation to consider the most dignified and exalted narratives as of this character, if we look upon them as the

mental and moral food for the period of childhood; and consider how much the strength and well-being of the future man depend on the nutrition supplied to him during the earliest portion of his life.

The difficulty of this part of our subject is much increased by the feeling of responsibility assumed, in passing judgment upon a mythology such as that which we have now to consider, so briefly, as to bring it within the limits of a paper like the present—a subject also which has occupied the thoughts and exercised the talents of learned and distinguished scholars; but it is a difficulty that cannot be evaded, and must be met as best it may.

Whenever a nation has a belief in superior beings,—whether they be superior in power and holiness, or merely greater in power and wickedness; whether they be angels or demons, gods or devils, heroes or types of degradation,—the children in that nation will hear of them from their earliest years; for they will see and hear of the hopes or the fears, the worship or the deprecation, associated with these powerful beings; and according as the child is accustomed to think of them as belonging to one class or the other, so will his character become insensibly moulded, and the man will but exhibit generally the teaching of the child.

When we look to the Greek mythology in this way, its high intellectual power and sensuous beauty on the one hand, and its deep moral degradation on the other, are the two great characteristics by which it is stamped; and the latter appears to have been that which gradually overgrew and almost extinguished the former, at any rate in its later stage; until, in reading the fables in the *Metamorphoses* of *Ovid*, the physical beauty is almost the only remaining feature to be praised. The dignity and intellect of the Gods have vanished from the stories, whilst their sensual vices, ignoble passions, and petty wickedness are what remain as

the chief features in the fable. There are, indeed, stories, like those of *Biblis* and *Myrrha*, that record the horror with which certain unnatural and almost incredible crimes were thought of by those who were the victims of them, and the vengeance which followed their commission; but the crimes were committed notwithstanding; or, if they were avoided, it was only by the suffering and death of the victim, whilst the perpetrators of them generally escaped unpunished. We are told, indeed, of the awful majesty and the invincible power of Jupiter, as if it was the proper thing to make mention of them; but the stories prominently develop only the ignoble disguise, the base fear of being found out, and the low, degraded motive which ended in the successful commission of crimes on his part; with the boastful triumph in some cases, and the undeserved suffering of the victim in others, as the termination of the fables.

In these tales, we see Juno, as the jealous and vindictive wife, revenging herself upon the unhappy victim of her husband's unfaithfulness to herself; querulous and undignified in her reproaches of him who had strength, but bitter and unsparing in her persecution of the weaker partner in the sin; feared sometimes before detection, but not unfrequently snubbed and insulted by Jove, in return for her reproaches after he had been detected. The picture presented to us of the highest female Divinity is that of a jealous and deceived wife, and an undignified and vindictive woman. The Greek youth would learn from these nursery tales to think that it was a fine thing and a good joke to deceive hereafter, when grown to manhood; and that a contemptuous rejoinder, rather than amendment, was the proper mode of replying to the reproaches which his conduct justly deserved.

Mercury, the messenger of the Gods, is presented to us as the cunning cattle lifter, the corrupter and afterwards the betrayer of his associates, and the partner for reward

almost indifferently in the crimes of Jupiter and the revenge of Juno; and the description of other deities might be continued in similar language, though, in some cases, it would be in even darker hues.

Amongst these tales of vice and profligacy, weakness and malice, appear others, it is true, of singular beauty. Ceres is represented almost unstained; and Proserpine brings before us a fair picture of unsuspecting childish innocence: and there are a few stories which can be read with unalloyed pleasure, inculcating chiefly the virtue of hospitality, and the punishment of inhospitable behaviour to strangers.

It would, however, be a great injustice to include, in the judgment given above, the tales told, no doubt, to many a group of eager listening boys, of Jason and the Golden Fleece; of Hercules and his labours; of Perseus and his noble deeds; and the patience, self-denial, and endurance by which many of the heroes performed deeds that were thought to entitle them to a place in the heavens. The fault in these tales is not that they make their heroes more, but that they depict their Gods as less, than men, through their ignoble vices and their crimes, which it were a shame to dwell upon.

ROMAN STORIES.

The Roman stories are far less numerous than those of Greece, and the opinion has been expressed that their ancient legends have been lost, which is the reason why we have so few of their nursery tales. Without venturing a confident assertion on the subject, my impression is very strong that few nations which retain a national life do lose their early legends. If they are dying out, their ballad literature and their legendary lore may be lost or forgotten; but whilst they retain their nationality, the worthy deeds of old times will still be verbally related to young and wondering hearers, some of whom will prove to be poets or historians, and will

bestow upon them a still more enduring form. The Romans were essentially unimaginative, and their legends and tales are comparatively few.

In them we meet with the old names to a great extent, but with this difference, that the scene of a story which is disgraceful to the character of a God will almost invariably be found to be laid in Greece proper, or in the region of a Greek colony; whilst those stories which attribute high moral characteristics to the Divinity have their scenery laid in Roman territory. And even when, as sometimes, though rarely, happens, the conduct of the Roman God would not bear commendation, the judgment tacitly passed upon it differs from that of the Greek. In two well known stories, one Greek and the other Latin, Mars is represented as a principal actor, and in both cases to his dishonour; but in the Greek story his conduct merely supplies a theme for laughter to the Gods, which was not soon forgotten; whilst in the Roman tale the element of ridicule or absurdity is absent. He is the great warlike progenitor of a great and warlike people; but he became so by conduct which occasioned the death, by grave sentence of law, of the victim of his crime; and approbation or a smile would never be excited in the Roman youth, who listened to the story of what gave birth to the great founder of his city, but caused, at the same time, the death of the Vestal Virgin who had been his mother. The Roman attributes of their Gods are grave and dignified, and the nursery tales of the Horatii and of Lucretia,—of the expulsion of the Tarquins; and of the judgment of Brutus,—of the bravery of Manlius and of Clœlia,—of the sacrifice of Virginia, and the victory over Coriolanus gained by his mother, to the saving of Rome,—these, and such as these, were the tales which interested and educated the children of Rome, who in time became its warriors and defenders; and it was when the Roman idea of his Gods began to be sup-

planted by the introduction of the Greek fables, that the Vestal Virgin merged into the Greek Nymph, the Roman Mars began to fight by deputy, and the Roman Matron became what she is described in the pages of Juvenal, and of satirists even before his time.

HEBREW STORIES.

If exception should be taken to the fables just reviewed, that they are not strictly nursery tales, the same objection cannot be made against the Hebrew stories now to be examined; for they were expressly commanded to be told to children, and to be narrated, not once, nor twice, but continually, in all the varied aspects of social intercourse—in the family, at home in the house, and when walking in the way, in the morning at uprising, and in the evening before lying down—Deut. vi. 20, xi. 19; Ex. xii. 26; Josh. iv. 6.

What then was the character of these stories for the Hebrew children, and what was the effect produced on the nation thereby? They were to the effect that their great ancestor was chosen above all the men in the world to be the favourite, and to be specially called the “friend of God.” They were stories of the marvellous protection which was supernaturally extended over them—stories of intense patriotism, and uncalculating self devotion for the good of the people, in the actions of Ehud, of Jephtha, and of Gideon—stories which showed that with few or with many, with a Joshua and his hosts, or a Sampson alone, it was a matter of indifference as regarded the victory; and stories which told of the wonderful feats performed by women as well as by men, by Deborah and by Jael, even more than by Barak and his host. And again stories of continence in men, and of female faithfulness and married love, as in Joseph and in Ruth; of filial obedience and submission, in Isaac; and of hospitality to strangers, and of parental forbearance,

in Abraham's reception of the three strangers, and in his delicate and generous treatment of his nephew Lot.

And although stories of crime and wickedness are interspersed, as will be the case in all true narratives, they were never related so as to provoke a smile, or to invite the hearers to imitation; for the story of the sin of Sodom is accompanied by an everlasting memorial of its punishment; and other stories of sin long gave occasion for bitter remembrance to the Hebrew race, in the conflicts and the fearful scenes which ensued at a later period of their history.

In these Hebrew stories, however, as in those of Greece, the Deity occupies a position always prominent, and sometimes pre-eminent. We have seen the impression which the Greek stories must have produced upon the mind which heard them from early years. What then is the representation of the Deity in these Hebrew stories, which were to be told unceasingly to the children? Awful and invincible majesty and power surround Him, but no form or similitude is ever described, which could give a pretext for a figure or an image to draw them off from the unseen reality to that which, being seen, was less than the meanest of its makers; and whilst impurity and deceit are stamped upon the Greek divinities in characters that cannot be erased, *Holiness* is the symbol which appears in every page of the Hebrew description of their Lord. And, animated by these stories, a nation lived, whose deeds of bravery and of daring were the wonder of the ancient world, the great monarchs of which tried in vain to subdue them, whilst they remained faithful to their teaching. And even when they had much forgotten the lessons these stories were intended to convey, there were still such women as the mother in the *Maccabees*, who could stand by and encourage her seven sons to endure torture to the death, rather than violate the law; and who could also herself at last joyfully submit to the same fate, in full confidence of the

glory to be revealed hereafter. And not only have Hebrew men and Hebrew mothers been solaced and sustained in bitter trial by these wonderful stories, but throughout the world their influence is still felt, and will still support in their hour of need, all who like the Hebrews have had the privilege of hearing them as nursery tales.

NORTH AMERICAN INDIAN TALES.

We have now examined the nursery tales of three nations in full life and vigour, and of three others which have ceased to be nations; and the conclusion of our inquiry shall be devoted to those of a nation now disappearing from the earth, whose stories, as already mentioned, first suggested the idea of this paper; I mean the tales told round the wigwam fires of the North American Cree Indians; and of these we will select one which seems to convey most fully the characteristics of their stories generally.

Once upon a time an Indian and his wife died, leaving two children, a girl and a little boy. The girl was old enough to snare rabbits and small game, and supported them until the boy had grown up to a good size: and one day he saw a great white bear in the woods; so he began to recall his dreams, and call upon his gods, who had promised in his dreams to help him; and then, just as the bear was about to seize him, he shot an arrow at it and killed it; and then thought himself a very great hunter. Sometime after this he set off and came at night to a large plain, which ended in a deep hollow; so he stopped and said to himself, "I never dreamt in my fasting days of going down into a hole and coming up again, so I'll just set a snare and see what I can catch;" which he did, and went to sleep. And in the morning he found something very round and shining in it, and on examining it he saw that he had caught the Sun by the neck, as it came up in the morning. He said

"Oh! I have done very wrong to catch the Sun, for the Indians in the West will want him during the day, I must let him loose." So he called various animals and sent them to break the snare, but they were all burnt up, until he sent a mammoth, which succeeded in setting the Sun free, but was also burnt up, except a little bit as big as the end of your finger, which was made into the little black mouse, that is still found in Canada.

Another time he reached the wigwam of an Indian one night, when a giant, called Windego, who was a man-eater, and had nearly depopulated the place, demanded him; the Indian begged that he would not insist upon having him, as he was a stranger, and must be treated hospitably; but he persisted in his demand, so the youth called upon his gods, and shot him, and cut off his head.

When he went away, he was told that he would come to three lodges, a day's journey each apart, and that he would be hospitably welcomed, but he would be killed during his sleep, so he must on no account go to sleep, however weary he might be: and it was only by keeping awake that he saw the danger and escaped each time. After this he met an old man, who told him that at the next lodge he would find ten young women, who would try and persuade him to stay with them; but he must push past the first nine, but he might stay with the last. And he did so with great difficulty; and on enquiring from the last what it meant, she said he was very fortunate to have passed them, for most travellers were so tired they stayed with the first that asked them, and the nine sisters were all married, and the husbands came and killed them. Then he went on his way, but could scarcely distinguish his path. Many strangers had come thus far, and the path was easy to find; but here they had all been killed; so that he found his way with difficulty to another lodge, where was an old woman and her daughter,

the latter of whom he married, and they lived happily together.

The metamorphosis of plants and animals, and the Indian notions of the world and the heavens, as illustrated in this story, form a frequent feature in these tales; and though some of them possess considerable beauty, like the Song of Hiawatha, describing the origin of the Indian corn, there is in general little more poetry about the narratives than in the one just related. But the features deserving of comment in this story, and in others resembling it, are the habitual references to his dreams in times of difficulty, and the self-denial and virtuous continence which the story implies. This latter is a well marked feature in the North American Indian character, and unfaithfulness in married life is very rare; when it does occur, it is generally revenged by the death of the guilty parties, as shewn in the following story, which also illustrates some other features in the Indian character not unworthy of note.

Once upon a time—for thus an Indian story, like our own, always begins—a young Indian chose a pretty wife in opposition to the advice of his mother, who told him he ought to look out for one who could dress the skins he took in hunting, and cook well, rather than for a pretty one. After a time he discovered that she was unfaithful, and he killed both her and her lover; and then knowing that her brother would try to kill him, he left the place, and told his two little boys that they must run away in a different direction, and if they heard their mother's head, which he had cut off, calling to them, they must not look back or pay any attention to it. All turned out as he expected, and after many difficulties the boys reached a river, across which they were carried by a crane, just as the head rolled itself to the bank. The crane took it also up, and promised to carry it over after them; but dropped it purposely in the middle of

the river, when it was changed into a sturgeon—and many Indians will not eat this fish on account of this tradition. Here the boys grew up in the woods until they were men, when one day, a bad old medicine man found them, and offering to take one of them in his canoe to collect gulls' eggs, left him on an island from which he could not escape. But he had dreamt in his fasting days that the gulls would save him, so they carried him safely off the island; and the old man pretended that it was an accident, and that he was very sorry. So the young man only replied, "Oh! no matter, no matter;" for an Indian does not profess to be offended unless he has an opportunity of avenging himself, and intends to do so.

Another time the old man proposed to go hunting the moose deer in winter; and during the night intended to burn the young man's shoes and stockings when he was asleep, which would oblige him to go home with naked feet in the snow, which would freeze them and cause his death; but the young man anticipated the intention, and by a stratagem caused the old man to throw his own shoes into the fire instead. But instead of leaving him to his deserved fate, he made a sleigh of deer skins and dragged him safely home.

From the novels we sometimes read about Indian life and manners, we are apt to think that forgiveness of injuries is not inculcated upon them as an Indian virtue; but the above, and others of a similar nature, tell a different tale, and the following, from real life, is an illustration to this effect.

An old Indian was one of a party that had become drunk; and whilst they were asleep, one of the Indians, who owed a grudge to another, cut off his nose, and escaped. The injured man, still half drunk, supposed it was his nearest neighbour who had done it, and cut off the old man's nose who happened to be lying asleep next to him. When the matter came to be discussed, as soon as they were awake and

sober, the old man said, "Well, it did not matter. He was an old man, and it was a mistake;" and he took no steps to revenge himself. When the circumstance was narrated to me, he was not praised for his generosity; but no disparaging reflections were made, as if he was a coward for not revenging himself.

The general tenor of these stories gives a favourable idea of the morals of the Indians. Stealing from one another seldom forms part of the stories; married truth, and affection amongst the members of families, is a decided feature; revenge for petty injuries is not breathed in the tales; and even grave injuries are constantly passed by without leaving any apparent memory of their occurrence. They leave the impression of a simple race of people, with few active vices, of great patience and endurance, and possessing qualities of generosity and truthfulness of by no means a low order. But as we have seen how the Gods appear in the Greek tales, and how the Deity is represented in the Hebrew stories, let us now see in what aspect the Divinities of these Indians come before us in their stories; and here we find a picture which accounts for much of the present and the past of these people. The following tale is a fair representation of them all:—

Once upon a time Aninna Boojòò, their great God, was out hunting, when he saw many red lions basking in the sun, and a great white lion in the midst of the herd. He had never seen a white lion before; so he was very desirous of obtaining its skin to make a tobacco pouch. Now, an Indian, in general, is satisfied with a musk rat's skin for a pouch, but Aninna Boojòò was so proud that nothing would satisfy him but the hide of this white lion. He contrived to shoot it, but did not kill it, and the red lions carried it off into the wood, to his great mortification. At length he met an old medicine woman, who told him she was spreading

a snare to catch Aninna Boojòo, because he had shot their chief, the white lion, and she was going to cure the lion by certain songs and herbs. So he learnt the songs from her, and where the wounded lion was, and then cut off her head and skinned her; and getting inside her skin, he feigned her voice and deceived the lions, until he could get near enough to kill the white one, which he immediately skinned, and then made his escape. The lions had power to cause the water of a surrounding lake to rise until the world was drowned, and Aninna Boojòo himself was nearly drowned also. At length the water ceased to rise, and he then called to him various animals, and told them to dive and bring up some earth, that he might make a new world. They did so; but one after another was dead before they could find any earth. At length, the musk rat rose to the surface apparently dead also; but by breathing on it he restored it, and then found a little bit of mud sticking to one of its claws. This he rolled in his hand, breathing upon it continually, upon which it grew larger and larger, until at length it would bear the little musk rat, and afterwards larger animals still; and at last it became a new world. (One of the Islands in Lake Superior is thought by the Indians to be the beginning of this new world.)

He once caught a very fine porcupine, and having dressed and cooked it, sat down to eat it. It happened that the wind made two trees rub against each other, so as to produce a creaking noise. Now an Indian's stomach will generally digest anything, but Aninna Boojòo was so proud that day that he had a very delicate stomach, and could not eat if there was any noise. So he climbed up the trees to separate them, but just then they caught one of his arms between them and held him fast; and some Chippewa Indians looked up from the bush and saw him, and said, "Oh! Aninna Boojòo is fast, we'll go and steal his porcupine." So they

took it and ate it, and he could not come down until the wind changed, when the trees separated and set him at liberty.

With one story more, we will conclude our Indian mythology. Aninna Boojdo once came to a place where there was an immense number of birds, luns, geese, ducks, and plovers, and he thought he would catch some. So he told them he would play the drum for them if they would shut their eyes and dance round his fire, and make as much noise as they could. So they danced round, and whenever a fine bird came past him, he caught it and screwed off its neck, and set it down again. At length an old lune opened his eyes and gave the alarm, when they all flew away. He was very angry, and cried out, "Oh! you rascally lune, why did you open your eyes?" and as he had no arrows at hand, he threw his drumstick at the lune, and struck him upon the back just above the tail, which made him come almost to the ground, and fly a good way before he could rise again. (In this bird there is a black spot in the feathers at this situation, and it always makes a long horizontal flight before it can rise in the air; both which peculiarities are thus accounted for.)

Aninna Boojdo then dug a deep trench under the fire, and put the birds in with nothing but their feet sticking out, and covered them over with the hot sand to cook, and went to sleep, having first desired his toes to keep watch, and awake him if the Indians came. They soon awoke him, but as he could not see the Indians, who were too quick for him, he merely threatened his toes if they awoke him again unnecessarily. The Indians now came and stole all his birds, and escaped; and when he awoke, and found the loss, he was very angry with his toes, and said, "I'll punish you for this! Why did you not awake me?" So he held them in the fire until they were burnt; and as he walked through the woods,

some of the blood fell on the bark of the dog-wood tree, and made it red, and the bark has been red ever since.

In these stories we see nothing to excite either admiration or respect,—respect for high moral qualities, or admiration for power and intelligence, even though unaccompanied by moral excellence. Their greatest divinity is outwitted by simple Indians; he is held fast by a couple of creaking trees; he is represented as filled with petty conceit, because he happened to catch a fine porcupine; he is petulantly angry with his own members without a cause; and at last he revenges his own carelessness upon himself, in a manner unaccompanied by dignity or by any thing to excite respect. And when we find that this is the picture of their divinity presented to the wondering mind of the Indian child, and that “eating to the full” is the principal joy of the happy hunting ground, we are not surprised, when enquiring about their belief in a God and in a future state of reward or punishment, to receive the answer: “Oh! these are things that the old people used to talk something about, but we know nothing about them.” High aspirations they have none, for where could they learn them in such stories as these? Respect for their Gods they have none, for their attributes are those of pettiness; and in many of their stories they are simply objects of ridicule. And as none of their tales that I could collect represent woman as having a place in even the meagre joys of the happy hunting ground, whilst toil and hardship are her share on earth, we were not surprised to hear that, on the birth of a girl, the Indian mother will often dash its head against a tree and kill it; and exclaim, “It is only a wretched girl, and it shall not grow up to bear the miseries I have had.”

CONCLUSION.

Such, then, are the characteristics of the nursery tales of the various people who have occupied our attention ; and we may now consider, very briefly, what influence they are likely to have in forming the character of the people who have listened to them from their earliest years, and have imbibed their lessons, though they may be quite forgetful of the source from which they have come.

Self-reliance and homely courage, and the consequent respect of his neighbours—honour and respect for women, though it may be of an unromantic character—and the simple happiness of domestic life—these are the teaching of our genuine English stories ; and long may it be ere these cease to be qualities of Englishmen.

Brilliancy of fancy, and elegance in all their works ; admiration of beauty, but still greater admiration of goodness and intelligence ; devotion to the supreme kingly power, and constant reference to him as the source of honour, and the moving spring of action—such are the prominent features of the French tales ; and such characteristics that nation has exhibited for centuries, and in spite of manifold revolutions still exhibits at the present day.

Religion, forming an essential feature in their thoughts, and brightening up a life which would seem to strangers almost inseparably surrounded with horrors—unsuspecting purity of family life, and an imagination which weaves the one bright spot in their island into all their fancies, and then multiplies it a hundred fold—industry and contentment ; such are the characteristics of the Icelandic stories ; and whilst such continue to be, as they now are, the characteristics of the people, we may rather take a lesson from them than pity them for living where fear and death would seem to have placed their natural abode.

And when from the present we turn to the past, we see in the once splendid and powerful Greek nation the fruits of their nursery tales; for gods, powerful, it may be, but incredibly mean in their guilt and cowardice; splendid in their intellect, but groveling in their desires; subject, like created beings, to the decrees of a superior fate, and the highest of them often unable to accomplish his desires even when honourable and worthy of success; base in family relations, and deceitful one towards another; gods such as these, presented to the youthful mind, could but degrade its aspirations, and prepare the way for that fall which the Greek nation has experienced, and in which Rome also shared; when Greek impurity took the place of Roman chastity; when selfishness and cunning superseded patriotic self-devotion and truthfulness; and when Greek literature and Greek mythology had supplanted the more homely nursery tales of the early Roman period.

We need not dwell upon the effects of the Hebrew stories upon their national character; for the rise and fall of that wonderful people, their prosperity and their reverses, corresponding with their faithfulness to the teaching of these stories, and their influence throughout the world at the present day, require no comment at our hands. But when we find a nation like the one we last reviewed, whose tales are a blank for the future, though they are not without virtuous teaching for the present, we may perhaps be stimulated to impart to them, more than we have hitherto done, those stories which we prize above all teaching for our own children, and which often help us on our way here, and open to us the promise of a bright hereafter.

THIRD ORDINARY MEETING.

ROYAL INSTITUTION, Nov. 12th, 1866.

The REV. C. D. GINSBURG, LL.D., President,
in the Chair.

The Secretary read a letter from Captain Sir James Anderson, Associate of the Society, acknowledging the congratulatory Resolution accorded to him at the first ordinary meeting.

Dr. Birkenhead, Mr. E. Davies, F.C.S., Mr. E. Brown, Mr. W. B. Halhead, the Rev. George Butler, M.A. Oxon., and the Rev. H. M. Stephenson, M.A. Cantab., were balloted for, and duly elected members.

Mr. ARCHER exhibited a large specimen of Asbestos, picked up on the coast of Newfoundland, by Mr. Charles Bowring, Jun.

Mr. T. J. MOORE exhibited the following :—A necklace composed of specimens of the *Dentalium*, or Tooth Shell. It consisted of fifteen links, and about fifteen shells to each link, strung upon fine thread, and was supposed to have been brought from the South Seas, by a collector in the service of the late Earl of Derby. Also some nuts found in bundles of the *Piassava*, or Bass, imported from Bahia, one of which nuts contained two full grown larvæ of large beetles, probably *Longicornes*. The *Piassava* is a species of palm, the fibrous covering of the stem of which is brought in large quantities to Liverpool, for brush making, &c.

The following paper was then read :—

SUGGESTIONS AS TO POSSIBLE LURKING-PLACES FOR INFECTION, IN OUR DWELLINGS AND TOWNS.

By ALFRED HIGGINSON, M.R.C.S.

At a time when the rate of mortality in this and other large towns is exceptionally high, so as to justify special inquiry by the Government, and additional committees of our Local Authorities, I need hardly apologise to this Society for bringing before them a suggestion, based upon a philosophical principle long recognised in other important cases.

When the British Association for the Advancement of Science met at Glasgow, in 1853, our late member, Mr. Thomas Dobson, B.A. of Cambridge, presented a report on the relation between explosions in coal mines and revolving storms. In this elaborate comparison of recorded storms with recorded explosions in the years 1851, 1852, and 1853, there is presented a mass of evidence which the most sceptical can hardly resist. The rational explanation of the connection between these two sets of phenomena is a ready one. The passage of a cyclone, or revolving storm, is accompanied by a sudden fall of the barometer, indicating a diminished pressure of the atmosphere. This extends to the cavity of the coal mine, as it does to all other places over which the storm passes. Connected with the mine are, it may be, old workings, blocked off more or less imperfectly, and natural cavities or fissures in the strata, always giving off more or less of combustible gases. The atmospheric pressure being suddenly diminished, this oozing of gas is

greatly promoted, and, if not counteracted by increased ventilation, an explosive atmosphere is produced in the mine, and waits only the contact of an open light to cause the dread result. Assuming then this principle, as clearly proved in the mine on a large scale, I think it admits of being carried usefully into the consideration of other cases, particularly those of our sanitary arrangements in hospitals, private houses, ships, &c. What is true of the old working of the mine is true of any cavity whatever, which is not closed hermetically from the air, be it a well or cess-pool, a vault or coffin, a roof cavity, floor or ceiling, a cavity wall, lath and plaster partition, shut up closet, cupboard, drawer or box, or even the sewers and drains in our towns and houses. In every one of these instances, a rise of the barometer will cause air from without to be condensed into the interior cavity through all the chinks and crannies; and on the fall of the mercury it will ooze out again, pure and simple, or fœtid and poisonous, as the case may prove.

My object in this paper is to draw attention to the *probable* importance, possibly the *great* importance, of keeping this idea present to the mind of the architects of our houses and hospitals, and to all who are brought in contact with disease of an infectious nature. Let us for a moment picture to our minds a bad case of scarlet fever, in a house where there are many children: all but the sick child are sent away, and when the case is ended the room is fumigated, white-washed, and papered, ere the family return; but, alas! the disease attacks perhaps another, and another, and we dare not say the issue. Where did the infection lie hid? May it not have lurked in some shut-up cavity, from which a low state of barometric pressure caused it to come forth?

In attempted explanation of the spread of disease, we find terms used,—“atmospheric influence,” “contagion,” “infection,” “epidemic” “zymotic,” “cholera cloud,”

“fever cloud,” “typhus wave,”—all implying that morbid influence has been lurking somewhere, and has shown itself in localities ready to receive it. Whether, in such hiding places as I have pointed out, morbid matters may gain a greater potency, I know not. I am simply desirous that, in our future hospitals and dwelling-houses, these possibilities shall be banished as far as may be.

I have been led into these remarks, in consequence of my attention having been of late directed much to hospital construction, with a view to the building of the new Southern Hospital in Liverpool. Two plans may be adopted to remedy the supposed evil: to have open ceilings and roofs, &c., or to make all such cavities communicate freely with the *outer* air;—at all events, let them not be *shut up*, which means, communicating by chance openings with the apartments adjoining. I have asked professional brethren, and architects, whether the ideas I have now brought forward have been hitherto promulgated, and acted on, but cannot find that they have, except very partially, as a precaution against the dry rot, to which it is known that free ventilation is decidedly adverse.

From these sources of possible harm in our houses, I turn briefly once more to the subject of sewers and drains. It is a well-known popular remark, that “we shall shortly have rain, the drains smell so bad.” Of course, the atmospheric pressure being diminished, the noxious effluvia escape into the streets and houses through any untrapped opening. Nay, even the trapped openings are not proof against the pressure, which is greater than a two or three inch column of water in the trap. The only way of preventing the escape of foul air from sewers and drains is by adopting a system of ventilation, which shall even cause an in-draught at all such openings. I have already advocated such a plan before this society, May 19th, 1845, and again before the Health Section of the Social

Science Association, at their Liverpool meeting, 1858. My proposal was, to connect the main trunks of sewers, near the river openings, with the fires of steam-engine furnaces, thus drawing out the foul air and burning it; fresh air would, in this way, be drawn in at the untrapped openings.

The practice of connecting rain water spouts with the sewers, for the purpose of ventilating them, I believe to be both inefficient and injurious. Why should the air go forty or fifty feet up a spout, rather than escape at the first gulley hole, or untrapped sink-stone, particularly the latter, to which it is drawn by all the rarefying power of fires in the house? I thus consider it inefficient. Also, it seems to me injurious, because in rain, the rush of water down a spout carries air with it into the sewer, and so causes it to blow out elsewhere. I have heard of this arrangement being put in practice to blow a furnace; but I cannot find where to refer for my authority.

[At a subsequent meeting of the Society, April 15th, Mr. Higginson stated that he had tried the experiment, here alluded to, with partial success; enough to establish the principle, but not on a scale, or with a certainty, sufficient to warrant its exhibition to the Society. Dr. Birkenhead and Mr. Davies, at the same time, expressed themselves as familiar with the fact of falling water carrying air down with it, forcibly enough to be made of practical use, in the laboratory or elsewhere.]

One other remark, on the danger of unventilated sewers, and I close my paper. I am convinced they are instrumental in conveying odours (then why not infection?) from one part of the town to another. As an instance, I remember walking from Upper Parliament-street to Netherfield-road, early one fine, still, frosty morning, many years ago: the air rising from the sewer-eyes being warm and moist, a deposit of moisture took place, and the grates were wet, and the frosty

rime gone from them. In Parliament-street and Bedford-street, these exhalations smelt strongly of turpentine, the source of which would be, no doubt, the Distillery in Lower Parliament-street—from a quarter to half a mile distant. I walked on, thinking no more of sewer smells, till in Bedford-street north, or Elizabeth-street, I wondered at a strong and disgusting odour, as of a flock of dirty sheep passing. None were to be seen, nor had any such disturbed the hoar frost on the ground that morning; but I was close by a sewer-eye, to which I traced the smell, and a few hundred yards lower down the hill were the abattoirs in Trowbridge-street, from which, no doubt, the odours emanated. Again, in Shaw-street and Netherfield-road, the smell of a tannery assailed me from the sewer-eyes, originating, no doubt, from Bevington Bush, or thereabouts.

These are no fancies of mine, but simply the plain facts recorded. But a few months ago (9th of April last), I came from Everton along Breckfield-road. A steady S.E. wind brought the smell of one after another of the sewer eyes, so that I knew, three or four yards off, where they were.

In conclusion, I may sum up thus:—I have, in this paper, launched the idea that whatever may be the intimate nature of infection in any infectious disease, such an agent may be hidden into, and eliminated from, various lurking-places in our dwellings, &c., by the variations of temperature and of atmospheric pressure; and that it may be conducive to the public health to provide against such a possibility by improved structural arrangements. Also that the sewers are subject to the same influence, and will continue to convey and give out unhealthy exhalations in streets and habitations, until an efficient scientific system of ventilating them be adopted.

FOURTH ORDINARY MEETING.

ROYAL INSTITUTION, Nov. 26th, 1866.

The REV. C. D. GINSBURG, LL.D., President,
in the Chair.

The Rev. F. H. Curtis, M.A. Oxon., the Rev. W. Kennedy Moore, M.A., Mr. Joseph Boulton, Mr. Alfred Hopps, Rev. R. England Long, Mr. Christian Flück, and Mr. E. Jones, B.A., were balloted for, and duly elected members.

After a brief conversation on miscellaneous subjects, Dr. Ginsburg left the meeting, and the chair was occupied by Isaac Byerley, Esq., Treasurer, when the following paper was read:—

NOTES ON THE LOCAL, NATURAL, AND GEOLOGICAL HISTORY OF RAINHILL.

BY THE

REV. H. H. HIGGINS, M.A. CANTAB., F.C.P.S.

A CURIOUS collection of anecdotes might easily be made relating to persons unacquainted with objects of interest belonging to the locality in which they reside. I knew a young woman, strong and healthy from her childhood, who, on her eighteenth birthday, saw, for the first time, a fine river and a bridge, only a few hundred yards from the house in which she had always resided. It is trite to remark, that numbers of the inhabitants of large towns would not, even once in their lives, visit the sights of the town, if an occasion did not arise inducing them to lionise a stranger; and I think it is quite possible that some of the inhabitants of Rainhill know more of the scenery of Wales, or of the English Lakes, than of the far less attractive, but not altogether uninteresting, features of their own neighbourhood.

The township of Rainhill, together with the townships of Bold, Cronton, Cuerdley, Ditton, Eccleston, Parr, Penketh, Prescott, Rainford, Sankey, Sutton, Whiston, Widnes with Appleton and Windle, together form the parish of Prescott. These names sufficiently indicate the position and boundaries of the township of Rainhill.

In speaking of our district or neighbourhood, I would be understood to refer, not to the exact limits of Rainhill, but to the country lying within a mile, more or less, of the church at Rainhill as a centre.

The first mention of Rainhill occurs in *Domesday Book*, compiled in the reign of William the Conqueror (A. D. 1086). There it is called "Rannle," which indicates the derivation of Rainhill to be the two words "Ran," signifying a crest or ridge, and "Le," a field. Ranle easily became Rannle, and hence Rainhill. The literal meaning then of Rainhill is the "Ridge-field," a field occupying the ridge or summit of a hill.

In the reign of Edward III. the manors of Sutton, Eccleston, and Rainhill were held by William de Norres. From the very ancient family of Norres, of Speke, Rainhill passed by marriage to Sir Richard Molyneux, and from the family of Molyneux again by marriage to the family of Lancaster.

The names of Eccleston, Pemberton, and Eltonhead appear in the early history of Rainhill, as tenants or proprietors. The neighbouring district of Halsnead was formerly a hamlet in the township of Whiston; and for the occupancy of Halsnead service was due to the court at Whiston. This service was annually discharged by the payment of a white rose into the court.

Of remains interesting to the antiquarian we have but few. The injurious effect of the allotment of so large a district to the ancient parish of Prescott is seen in the scarcity of churches. Until comparatively a recent date, no churches were found in the townships of Eccleston, Parr, Sutton, Rainhill, and Whiston. Those of Bold, Cronton, Cuerdley, Ditton, Appleton, and Windle are still in this respect deficient.

Several localities in the neighbourhood are distinguished as being the sites of crosses. Thus, we have Peasley cross, Marshal's cross, and Kendrick's cross. This last may possibly have been originally Rendrick's cross; for in 1626 John Rendricke was a person of consideration, residing at

Rainhill. He was the founder of a grammar-school in the township of Ecclestone.

The bridle road leading from Mill Lane to Prescott has the ancient name of Two-butt Lone, signifying, perhaps, a lane of the width of two butts, and reminding us of the time when the archer's butt might be a familiar standard of width.

In an open field, which, on one side is bordered by the brook crossing the railroad a few hundred yards east of Rainhill, is a cavity filled with water almost overgrown with grass and weeds: this is the St. Anne's well, which formerly enjoyed a rather extensive reputation for the healing virtues of its water especially in cases of diseases of the eye. I once saw at the well, a poor girl, who, with her companion, had come from the neighbourhood of Billinge to bathe her eyes with the water. She was nearly blind, but seemed full of hope that her pilgrimage would be successful.

A house situated to the south of Rainhill Stoops is known by the name of "The Manor House." The porch is ornamented with two rosettes and other carvings in stone, and bears the date 1662.

A house not far from Lea Green, in the township of Sutton, bears the name of "The Moat House." The moat, which is now filled up, was of unusual extent. Houses of this kind, in retired situations, were not intended to be places of military strength; but in the times of the civil war, moats and other slight defences were often effectual in guarding against the sudden attacks of marauding parties in search of plunder. The Moat House dates, probably, from the time of Charles I.; and articles of silver have been found buried in the soil of the garden. A few years ago, the old house, with its quaintly cut yew trees, was an object of picturesque interest; and in early spring, when the green lawn reaching to the moat was covered with golden tufts of the daffodil, the scene possessed a homely beauty of an order

which was by no means commonplace. I have not been able to confirm the tradition of an underground passage connecting the Moat House with another residence at some distance.

The most interesting, and probably the oldest, residence we have in our vicinity is Rainhill Hall. I have not been able to ascertain the history of this house, further than that it passed by marriage from the family of Lancaster to that of Fleetwood. Rainhill Hall seems at one time to have been, like many other old houses, in the form of three sides of a quadrangle. One portion is detached, and other portions have been added, so that the ground plan is without uniformity. The windows in the detached portion indicate a style of workmanship more elaborate than ordinary; and from the architectural details I am inclined to think the house was built before the year 1600. A part of the building was for many years used as a chapel, and was attended by Roman Catholic families from Bold and other neighbouring townships. Rainhill Hall is now an exceedingly picturesque farm residence: the ivy-covered walls, and the old garden, with its quaint and singularly constructed sun-dial, and the curiously carved mullions of the windows, are such as might equally delight the antiquary and the artist.

The chief artificial features of the district are the railroad and the high road from London to Liverpool. Of the former I need say nothing: the railroad is I think pretty well appreciated.

The high road is interesting to an observer of character. It is one of the chief routes for humble pedestrians from London to the Western and Northern world; and as Railway Directors have not succeeded in proving to the satisfaction of everybody that it is cheaper to go by rail than to walk, great numbers of needy travellers prefer the latter alternative. Besides the crowds of poor Irishmen who at certain seasons

of the year appear in very characteristic attire, every half-hour, or less, brings along the road a group of foot-sore passengers, or a solitary traveller, evidently from far away; their looks and their clothes in every case showing more or less of their past history. It is sometimes a hopeful, but oftener a mournful, tale that is thus told.

“ And such is human life; so gliding on,
It glimmers like a meteor, and is gone.
Yet is the tale, brief though it be, as strange,
As full methinks of wild and wondrous change,
As any sung of old, in hall or bower,
To minstrel harps at midnight’s witching hour.”

Some I think on our road are thankful to the friend who has provided for them the travellers’ rests, giving them also at the same time, by appropriate inscriptions, “sermons in stones.”

I now proceed to give a few notes on the Natural History of Rainhill, supplying the names of some of the best things (in the collector’s use of the term) I have myself met with in the immediate neighbourhood.

The wild animals of our district do not require a lengthened notice. On a still summer night, in some of our quiet lanes, may be heard a low rustling amongst the leaves at the bottom of the hedge row; it may prove to be occasioned by a hedgehog,¹ a truly nocturnal animal; which, if it appeared by day, would soon be extinct, for it is cruelly treated alike by men and boys wherever it is found.

We have also the field shrew,² commonly regarded as a mouse, but which is more nearly related to the hedgehog. This little creature, which is easily known from the field mouse by its long and pointed snout, has for centuries been an object of superstitious dread and dislike. It is very quarrelsome, and if two are placed together in a box, one of

¹ *Erinaceus Europæus*.

² *Sorex araneus*.

them will soon kill the other ; but it ordinarily feeds on insects, and is perfectly harmless. It seems, however, to have some noxious qualities, for though cats will readily kill shrews, they will never eat them.

Time will not permit me to say much of the Birds of our neighbourhood.

A large flock of lapwings have for many years frequented a field on the Elton-head Farm ; they disperse at pairing time, but return regularly in the autumn.

Among the less common birds that I have noticed, are the Kingfisher, the Red-backed Shrike, the Wheat-ear, the Whinchat, the Redstart, the Water-rail, and the Chiff-chaff.

But perhaps the most interesting bird that we have is the Greater Pettichaps,³ or, as it is now generally called, the Garden Warbler. This bird arrives in the beginning of May, and its song is most frequently heard in the neighbourhood of houses. Next to the Nightingale, it is the sweetest songster amongst all the British birds. Its notes are less powerful, and its strains less impassioned, than those of the nightingale ; but it sings at intervals the whole day long, hiding itself so cleverly amongst the foliage, that even when not more than a few feet away, it remains unseen. It is not a common bird anywhere, but I think, from the numbers I have heard in this locality, that, for some as yet unexplained reason, this charming little songster has a preference for Rainhill. I have heard it in various gardens, on the hill behind the church, in the lane leading to Halsnead, in my own garden, and several other places.

Amongst Insects, the most popular tribe is undoubtedly that which includes the butterflies and moths. Of the butterflies we have but few ; but occasionally an unexpected species appears as a single specimen ;⁴ and in 1865, no less than three kinds were in my own garden that I had not seen

³ *Curruca hortensis*.

⁴ *Melitæa Artemis*, in 1861.

since leaving the South of England. Moths are abundant.⁵ Many of us have noticed in the early spring, the catkins of the willow: but perhaps as we have seen the little golden tufts quietly enjoying the beams of the April Sun, we have little suspected what a carnival is held around them when night has fallen. Moths of various kinds are attracted by them in scores, and hold high festival undisturbed, even by the lantern of the entomologist. If only for a single night we could see in the dark hours as well as in the light, we should wonder not a little at the hundreds of beautiful moths that in a summer's night make every hedge, bank, and every field, a scene of marvellous animation. This may be confirmed by any one who will make the experiment of what is termed, "sugaring a tree:" that is of spreading upon the trunk a mixture of treacle and rum. I have seen at Rainhill, on a tree so prepared, at one time, nearly a hundred fine and beautiful large moths, each one pushing and shouldering its neighbours, the better to get at the luscious intoxicating drops. Perhaps not more than one out of all the number might be wanted, but from the fatal influence of the seductive nectar all are alike at the disposal of the collector, and may be taken off the tree even by the hand.

There is much that is pleasant in collecting Moths, but far more in first obtaining the caterpillars and watching their growth and changes. A moth fresh from the chrysalis is always exquisitely beautiful. The best of all plans for keeping caterpillars is, simply to use a preserve pot with a little sawdust in it, and to lay a piece of glass upon the top. The food may be changed every other day.

Beetles are not generally popular, and I shall say very little of them; but there is one occasion when their

⁵ *Gortyna Flavago*, *Mamestra Persicariae*, *Miana arcuosa*, *Celana Haworthii*. Out of the 294 species of British NOCTUIDÆ mentioned in "Stainton's Manual," I have taken 74 species in my own garden, or within a few yards of it.

appearance is associated with wholly pleasurable feelings—I mean, during the first bright days of spring, when the field path or the glaring high-road is literally alive with busy shining beetles, coppery or brassy green, purple or black, all hurrying as if their lives depended on their haste; which, in fact, is sometimes the case if a collector passes who has to hunt in his pocket for a pill box. But, after all, the most productive places for the Beetle tribe are our many quarries, especially a large one near the Prescott Road.⁶

On a glowing summer's day, just where trees form a chequered shade, may be noticed an insect poised in the air, with whirring wings basking in a gleam of sunshine—a step nearer, and it is gone into the shade where the eye cannot follow.⁷ It belongs to a numerous tribe which forms a portion of the vastly more numerous order of flies with two wings. No two-winged fly has a sting.

The four-winged flies are extremely numerous, and amongst them are the tribe, which of all insects are the most interesting—I mean the Bees. There are about a hundred and fifty kinds of British Bees.⁸ Volumes have been written on the habits of the Hive Bee. Almost every species of bee has its own peculiar habits and life history. Rocky banks at Cronton, Huyton Quarry, and many other places nearer to Rainhill, harbour various kinds, and when the whitethorn becomes green, merry little bees sun themselves on every spray, and form burrows in every path.

Mason Bees, Carpenter Bees, Leaf-cutting Bees, and a tribe of gay waspish looking bees, which, like the cuckoo, lay their eggs in nests not their own, all these, and many more, are found in our district. If any one wishes to study or

⁶ COLEOPTERA.—*Cychrus rostratus*, *Hylobius abietis*.

⁷ DIPTERA.—*Helophilus versicolor*, *Sericomya superbians*, *Chrysoclamis cupressæ*—all rare insects.

⁸ HYMENOPTERA.—Two of our most beautiful bees—*Andrena cineraria*, and *Anthidium manicatum*—are not uncommon in this locality.

collect insects, he may be sure that none will better repay attention than the Wild Bees.

It is to be feared that few who have lived long in the country have never had to complain of the ravages of slugs and snails.⁹ Slugs are altogether too common in our gardens; and, to make matters worse, gardeners often thoughtlessly destroy toads, the natural enemies and consumers of slugs. The wall snail, with its marbled shell, and the garden snail, the common oddie of the children of the South of England, are rare in Rainhill, though common in Cheshire. A very few of the garden snail may be found by the brook crossing the railroad near St. Anne's Well.

Other species, having shells small in size but exquisitely formed, some transparent as crystal, others horny, and others beautifully sculptured, are found on the under side of stones, or on decaying timber; but shells of still greater variety are easily found in all the pools, and rivulets, and ponds of the neighbourhood.

These form an admirable stock for a fresh-water aquarium. Ten or fifteen species are easily found, and live well in a fish globe half full of pond water. They do not require feeding, but it is better to have some sprigs of a green fresh-water weed in the aquarium.

The flowering plants to be found in the neighbourhood of Rainhill are not very remarkable, either for variety or rarity; yet a walk in the month of July across the Hall Farm, and along the lanes between the Hall and Cronton, affords opportunity for collecting about eighty kinds of wild flowers. The district to the north of the railroad is less productive, and as St. Helens is approached, the unfavourable influence of the alkali and other chemical works on vegetation becomes more and more manifest. Waste places, shady undisturbed nooks, double hedge-rows, and the broad green

⁹ MOLLUSCA.—*Zonites excavatus*, *Zonites radiatulus*, *Planorbis imbricatus*.

sides of rural lanes are becoming every year more scarce. Yet though such places are treasuries of floral wealth, it is perhaps unreasonable to regret their disappearance, when it is remembered that they have given place to the better and more intelligent plans now adopted in the cultivation of land.

On the south of the railroad, near Lea-green, is a small wood called Hangsdale's wood, in which the under-growth is low, and the trees are mostly small; yet by the number of plants found there, which do not occur anywhere else in the neighbourhood, I am inclined to think the soil has never been ploughed, or at all events has been undisturbed for a long period.

First, the Sanicle,¹⁰ a plant with dark green glossy leaves and valerian-like flowers, deriving its name from healing virtues memorialised in an ancient proverb, "He needs neither physician nor surgeon who hath Bugle and Sanicle."

There also grows the Sweet Woodruff,¹¹ which when gathered has no scent, but, dried in small bundles, communicates a deliciously fresh perfume to linen amongst which it has been placed.

Cow-wheat¹² is abundant there in July; its flowers of a pale gold colour resemble the pendant of an ear-ring.

The Wood Melic grass, and the Giant Fescue grass, both of them extremely graceful plants, are to be included in the same list.

The wood contains a single plant of Saw-wort,¹³ a purple flower of considerable size. It was growing there this Autumn, just where it grew seven years ago. There is a plant or two of the same flower growing close to the river side at Speke Hall. Except in these two places, I believe the Saw-wort does not grow any where nearer than two or three miles beyond Warrington.

¹⁰ *Sanicula Europæa*.

¹² *Melampyrum pratense*.

¹¹ *Asperula odorata*.

¹³ *Serratula tinctoria*.

These are exiled flowers, though indeed they are not correctly speaking exiles; it is that their kindred have died away from around them, not that they have been banished from their relatives, or accidentally carried to a distance; these solitary plants suggest questions of the very highest botanical interest, but which time does not permit me to discuss.

The changes, agricultural and scientific, that have taken away so many wild flowers have brought us a few. The banks of the railroad near Lea Green are bright in the Summer with the purple and gold of the cut leaved Mallow, the Goat's-beard, and the St. John's wort.

I must not leave the flowering plants of Rainhill without referring to the great beauty of the borders of some of our ponds; on the Elms Farm, and one especially on the Hall Farm near the Lovers' Lane. The Marsh Cinque-foil, the Purple Loose-strife, the Marsh Forget-me-not, two or three Speedwells, one a rare species, and many others, form a floral ring, bright with all the colours of the rainbow, reminding one of what quaint old Michael Drayton, who was born three hundred years ago, sung of flowers.

"Blessed be God for flowers;
For the bright, gentle, holy thoughts that breathe
From out their odorous beauty, like a wreath
Of sunshine in life's hours."

Our district is rich in the Fern tribe. Friends from the south of England passing along our shady lanes, and even by ordinary hedge-rows, have been much struck with the abundance and luxuriance of our common species of Fern.

The common Polypody, the Bracken, the Male Shield-fern, the Broad Shield-fern, the Lady Spleen-wort, the Hart's-tongue, and the Blechnum are in profusion. The common Spleen-wort occurs sparingly on the walls of the railroad embankments. The Prickly Shield-fern, the

finest of all the Ferns for the garden or the rockery, grows in lanes and plantations near Cronton. The Royal Fern, the Oak Polypody, and the Beech Polypody, the Mountain Shield-Fern, and the Wall-rue are growing within a few miles of this place. Thus we have fourteen species of Ferns within a short distance; and of these I think I have seen more than twenty varieties, so distinct as to have received names.

Such is the love for these graceful plants, that single specimens of rare varieties are priced in the London catalogues as high as from two to ten guineas; and it is an interesting fact that several of these costly varieties were first discovered and sent to London by a cottage botanist,¹⁴ who found some of them in the neighbourhood of Rainhill, others, and I believe the best, in the direction of Tarbock and Hale.

The plants, lower in the scale of vegetation than the Ferns, are comparatively little known; yet they well repay attention, and have this peculiar advantage—that many of them are found in perfection during the winter months.

The Horse-tails present perhaps the best illustration in miniature of the plants which formed, in the hot and steamy days of the carboniferous period, our beds of coal; and even now the growth of the Marsh Horse-tail, in Halsnead Wood, reminds one of a tropical jungle. But to see it properly, the explorer must walk along the bed of a little brook. The most beautiful of all the Horse-tails adorns a bank, where all else looks dingy, at Helbess Brow, close by St. Helens. This is the Wood Horsetail, not by any means a very common plant.

About five hundred kinds of Mosses grow in Britain. Some of the finest and most beautiful of these—as the Hair Moss and the Urn Moss—are seen to great advantage in the quarries, or delfs as they are here called, especially the large

¹⁴ J. Morris, Rainhill.

quarry at Pex Hill. As soon as the winter's snow is gone, any one may there see many square yards of the quarry floor covered, as with a close array of Fairy Foresters in green, each holding up a crimson-pointed spear. Mosses grow beautifully in pots the size of coffee cups. A collection of these little plants takes up but little room, and it is charming to watch them put forth their fruit. One hundred species may be found within a mile of this place.

There are more than two hundred species of British Lichens; some of these grow in the neighbourhood; but with one or two exceptions our local species are not fine. The little silver Green-cup moss is a true Lichen, and is easily found; its cousin, with the chalices beaded with crimson tips, requires more looking for. It may be gathered near the highest point of the hill, behind the Church. Lichens were much used for dyeing materials; some kinds are well known in Liverpool under the names "Cudbear," and "Orchella weeds."¹⁵ One of the Lichens, sold as an Orchella weed, grows on the wall just beyond the parsonage, as you ascend the hill.

Several tribes of plants follow, known only to the lovers of the microscope: such are the Desmidiæ and the Fresh water Algæ. Most of us must have seen these tiny vegetables, for it is hardly possible to look at the sides of a rivulet, or at a damp rock, without at least their colour becoming manifest to the eye. Nothing, however, can be more unpromising than their appearance, till they are placed under the microscope, and then not even roses and lilies can shew more exquisite forms. I have many species collected at Rainhill, but none of them is suited to be exhibited in public. Some of you may have noticed, on the left hand side of the railway going to Liverpool, just beyond the skew bridge, patches of a fine golden orange coloured plant adorning

¹⁵ *Urcolaria scruposa*.

the rock ; this is a *Conferva*, and an exquisite object under the microscope.¹⁶

Last in the botanical series come the *Fungi*, of which the most familiar example is the common Mushroom. More numerous are they in species than all the trees, and flowers, and ferns, and mosses, and lichens put together ; they vary in size and weight from a grain of sand to large masses weighing many pounds. Some are exquisitely beautiful, others are simply disgusting. *Fungi* may be found everywhere, and at all times. The study of them has afforded myself more delight than any other pursuit in natural history ; but I must not trespass on your patience by attempting a description of any of them. I may, however, say that of the collection of dried *Fungi*, exhibited in the Museum of the Royal Institution, Liverpool, the only collection, I believe, thus exhibited in any museum ; the greater part were collected in Knowsley park, or at Rainhill.

In taking leave of the Botany of our district, let me strongly protest against the too common impression that in order to find an interest and a pleasure in wild plants, it is necessary to be a Botanist. Nothing can be more fallacious than this. It is true of plants as of all natural objects, give them a chance, and they will soon win their way into a very warm corner of your affections : give them, I say, a chance, don't despise them, and always pass them by as if they were not worth a thought ; notice them, compare them one with another ; or, better still, give up a yard or two of garden ground to them ; and if when walking you see a wild flower that takes your fancy, bring it home and stick it in the garden, and see it grow ; never mind the remarks which your gardener will probably make ; try it for one season, and give it up the next if you feel inclined.

Rainhill, as its names ancient and modern imply, has for

¹⁶ *Ectocarpus aureus*.

its chief natural feature a rising ground which separates two small systems of running streams. It is, therefore, what is called in modern phraseology a watershed; but not one of any note. I have been told that in Wolverhampton there is a street in which the rain that falls on one side descends to the Trent, and by the Humber into the German Ocean; the rain that falls on the other side of the same street flows eventually by the Severn, and into the ocean through the Bristol channel. We have of course nothing to compare with this; but the streams on the north slope of Rainhill pass by the Roughdales through Parr into Sankeybrook, whilst those of the south and west slopes pass by Tarbock into the Mersey near Speke.

The physical configuration of Rainhill is, therefore, extremely simple, but as you pass onwards towards St. Helens, it is impossible not to be struck with the number of little valleys sloping in various directions, but all having northern outlets. The form of these valleys is very peculiar, so peculiar as plainly to indicate the way in which they were formed. They are tidal valleys, valleys that have been washed by the tides of the ocean. Now if we enquire what was the probable condition of our district at the time when the many little valleys of St. Helens were creeks of a sea shore, I should say Rainhill was then part of an island, or rather of a peninsula; all the flat lands of Speke and Ditton were under the sea, which swept round far to the east of Rainhill, leaving Appleton and Bold high and dry, but pouring its waters over the Sankey Brook district, and coming round by St. Helens to places within a mile of us on the north.

This was the condition of things probably not so very long ago, I mean since the appearance of man upon the earth, though how many thousands of years ago it would be a mere guess to suggest.

But if Rainhill was then an island, you must not think

of it as if it were then a verdant spot, with trees and flowers, and surrounded by a bright shore, with limpid waves rippling on the beach. Dank and chill, smothered with a barren mud; lifeless, unless indeed might be seen on the shore some crawling crustacean, or some shell brought from the far north; cold and lonely and miserable, not a sail on its waters, not a plant on all its acres of half frozen slime; for Rainhill was then only just recovering from a tremendous visitation. The icy waters of an Arctic sea had been sweeping clean over our whole district; in fact, if a voyager could have lived on that desolate sea, which surged hundreds of feet in depth over the place which is now Rainhill, he would have seen no land nearer than the mountains of Wales or Westmoreland; but no vessel could have existed on that terrible sea, covered as it was with icebergs, dashing and grinding against one another, with a power that would make a man feel himself but an atom.

I have heard that the breaking up of the ice on the Neva is a grand and a terrible spectacle, but what must have been the sight of a flood that bore the ruins of a mighty Arctic Continent: floating ice-hills carrying blocks of stone weighing many tons, and acres of mud and shingles, scooped from the shores of unknown Polar Seas.

Such was the movement which geologists term "the drift." It was the last of the great changes which have modified the shape and condition of our land and sea. I do not think there is any reason to regard it as a sudden or a transient change—it may have extended to thousands of years. It has left its marks on every part of our land. It has modified the shape of all our hills, causing the western sides to be steep, whilst the eastern sides are sloping. From the highest point of Rainhill this character may be well seen in the Orme's Head, the Bidston Hill, the Overton Hills, and the Billinge Hill, all of which are comparatively steep towards

the west. Even Rainhill has its steepest side on the west, as you pass down the road to Halsnead. As you pass over any ploughed field in Rainhill, you will find pebbles of various kinds—of rocks not known to exist nearer than Westmoreland or Scotland. How came they there? They were carried in floating blocks of ice, and dropped as the ice melted. A few days ago I visited a clump of trees on the very highest point of Rainhill, to see if I could find traces of the ice sea. There they were, in little streamlets of a white sand, left there, no doubt, when the tip of the hill was emerging from the icy flood. Just as when the waters had subsided still further, beds of silvery white sand were left near Eccleston, on the way to Rainford. This sand, which is like no other sand in the neighbourhood, is much used in the glass works.

It is strange to think of Rainhill as at the bottom of a deep turbid sea, scratched and seamed and furrowed by the heels of mighty icebergs as they floated over, and bespattered by them with stones, black, green, and blue, quite unlike our homely red grit. It is stranger still, to think of our Rainhill as fairly buried under ground, perhaps under many feet of solid earth, so that no one could have visited the spot where we are now, except a gnome.

Now it is altogether improbable that whilst the south and east of England were immersed again and again in the depths of the sea, and were accumulating hills of vast extent, that we at Rainhill should have had no ups or downs in the world; and therefore it is probable that beds of earth were once on the sandstone that we now walk upon; but, if so, every trace of them is gone, slowly worn and wasted away by a process which is termed denudation, but which means nothing more than is now going on by the rains and floods of every year.

The rains and frosts are now breaking down every mountain top; not even the least bit that falls ever returns, but

gets washed down lower. It might require at this rate a million of years to level the mountain, but at last it would be but a heap, and even the heap would in course of ages be lowered to a plain. This is the kind of change which has produced results which astonish us, and which it was formerly the fashion to attribute to some wonderful convulsion of nature.

It was necessary to speak of the missing link, for we at Rainhill have nothing to show for the time between the new red sandstone and the traces of the icy sea, an enormous period, as unfit to be measured by years, as the earth's circumference to be measured by inches. Of this immeasurable interval, I shall say nothing, except that whilst it lasted, Rainhill, or rather the land in the latitude and longitude of Rainhill, enjoyed perhaps more than once a tropical climate, that the Elephant, and the Rhinoceros, and the huge Cave Bear may here have wandered through groves and jungles, like those of India or South America.

Any one disposed to enjoy the pleasure of a quiet reverie, may take his station opposite one of the deep cuttings to be found in the quarries of the neighbourhood. He will have before him a wall of rock perhaps 100 feet in height, the material of which is a compact sandstone. The age of the pyramids multiplied by many thousands would not reach the remote date when the materials of that wall were brought together. And yet the wall itself tells of countless ages passed before. Every grain of sand in that huge pile of rock was previously a portion of a far older crystalline rock, and the mass itself was formed just as the Burbo bank or any other sand bank, at the mouth of the Mersey is forming now. Its hardness shews that it has undergone enormous pressure, either from being at the bottom of a deep sea or from superimposed rocks now removed. The lines formed by its various beds shew that the whole mass has been tilted

up by a force acting from beneath, and the colour of the whole indicates that the sand of our sandstone was deposited in a sea which probably held in solution a large quantity of iron.

The new red sandstone formation has in our neighbourhood a thickness or depth of about 1700 feet; beneath it lie the coal measures, the unproductive portion of which, before the workable coal is reached, is about 1500 feet in thickness. It is plain, therefore, that if these beds were uniformly spread, we should have to descend more than 1000 yards into the earth, before we reached a single bed of workable coal. But more than one fault is known to occur in our district, and at Thatto Heath, which is almost close at hand, the beds below the productive coal measures are brought to the surface, so that it is quite possible that we may have mining operations brought nearer to us than they are at present.

FIFTH ORDINARY MEETING.

ROYAL INSTITUTION, MONDAY, December 10th, 1866.

THE REV. C. D. GINSBURG, LL.D., PRESIDENT,
in the Chair.

Mr. Elisha Smith, Mr. Hugh Fergie Hall, Mr. B. Benas, Mr. Peter Owën, and the Rev. H. H. Roberts, B.A., were balloted for and duly elected members.

Mr. T. J. MOORE exhibited the following recent additions to the Derby Museum:—

Two fine specimens, young and full grown, of Venus's Flower Basket (*Euplectella aspergillum*, Owen), found in moderately deep water off the Philippine Islands. Of this remarkable sponge, the first specimen approaching perfection was discovered by Mr. Cuming, the well-known collector of shells, and was described by Professor Owen in 1841; and until the present year no other example had been obtained. The small end is rooted in mud, some of which still adheres to the specimens. Small crabs inhabit the interior, and being too large to escape through its network, they are supposed by the natives to construct the sponge as an abode. They doubtless find their way in when very young, and there remain through life. Many species of Crustacea seek similar protection in the structures of other animals. This sponge is shaped like a cornucopia, but with the mouth fringed and covered with an immovable perforated lid. The full grown specimen is rigid, about twelve inches long, and presents the appearance of most delicate and elaborately interwoven network. The smaller example is not so far advanced in elaborate construction, and, while rigid in its lower half, is soft

and yielding in the upper. A large and fine series of these beautiful objects has lately been added to the British Museum, which also possesses Mr. Cuming's original specimen.

Specimens of some of the silicious fibres, from the base of the sponge, mounted by Mr. W. J. Baker, were exhibited under the microscope at the conclusion of the meeting.

A fine specimen of *Callianassa Turnerana*, A. White, presented by Mr. J. O. W. Fabert. This singular long-bodied Crustacean, somewhat resembling a cray-fish, appears periodically in the river Cameroons, and disappears in the course of ten days or a fortnight. The natives are very fond of them, as they are delicious eating; and as soon as they make their appearance in the river, the men leave their usual pursuits to catch them.

A fine Atlas-moth, from the Cameroons, collected and presented by Mr. Bowerbank. Some eggs of a Snake from North Australia, showing the young nearly ready to escape, presented by Mr. Pennington. Also a Sea-urchin, with long slender spines, and variegated markings, one of two obtained at Pulo Taya, in the China Seas, by Captain Berry, ship "Richard Cobden," Associate of the society. These specimens were submitted to Dr. Gray, of the British Museum, who described and figured them as new in the proceedings of the Zoological Society of London, 1866, p. 170, under the name of *Spatangus (Meretia) variegatus*.

Mr Moore presented to the society, in the name of the author, to whom the gold medal of the Royal Society has just been awarded, a copy of his elaborate and beautifully-illustrated paper, "On the Structure and Development of the Skull in the Ostrich Tribe, by William Kitchen Parker, F.Z.S.," about to be published in the *Philosophical Transactions* for 1866.

The following paper was then read:—

ON PILLAR STONES, STONE CIRCLES, &c.

BY THOMAS INMAN, M.D.

ON a previous occasion I endeavoured to show that the spread of nations, trade, or missionary zeal was much greater in days gone by than History had led us to believe ; and I noticed that names still current amongst ourselves had been borne by Eastern nations in the remotest antiquity. The subject then selected embraced many others, and when pointing out that signs ought to be studied as well as language, I remarked that it was a startling thing to find, in the most sacred places of some of our churches, a symbol used alike by the Freemason in his lodge, and by a Buddhist or Hindoo in his devotions when away from a Temple, and to see this side by side with another emblem, which was that used in Babylon to represent the sun. It is equally curious to discover that emblems supposed to be essentially Christian were in use amongst the Etruscans, who were old as a nation when Rome was an infant ; and that they have existed from time immemorial in those Eastern countries with which Europe has only just become acquainted.

If we turn from devices of small compass to those of greater size, we are struck with the same resemblance between the past and the present, and the geographically remote and near.

Stone pillars are to be met with in Great Britain, from Cornwall on the South to the Orkneys in the North, and they, alone or with stone circles, may be traced from Scotland to the plains of India.

Some of us may perhaps lament the infatuation of votaries

who could see in a stone a holy emblem, and pay their homage before it; and we may plume ourselves upon the increased intelligence of our own age; but the flattering unction is somewhat dashed, when we find reverence to a boulder existing in the highest circle of England, and that a black stone still remains in Westminster Abbey to perform a silent but important part in the ceremony of crowning each new sovereign. What we think and say about those of Tyre and Ephesus may be said by posterity about the Londoners of to-day; and some erudite New Zealander may descant learnedly upon the ideas of our Kings and Queens, who could only put a diadem on their heads while sitting upon a particular bit of rock.

So much has already been written upon the subject of pillar stones, circles, and cairns, that I cannot pretend in this essay to any great originality. The late Godfrey Higgins, in his *Celtic Druids*, almost exhausted every thing which could be said upon the matter in his time; and since then Colonels Forbes Leslie and Meadows Taylor have produced still more interesting details, and handled the subject in a way which leaves nothing to be desired. Dr. Moore, in *The Pillar Stones of Ancient Scotland*, has done much in a philological sense, and his labours supplement a very elaborate work on the *Pillar Stones of Scotland*, a copy of which I have not yet been able to procure.

In the present essay, my intention is to point out what we know about the reverence given to conical and pillar stones, circles, and cairns, and the way in which the present is linked to the past.

We find that in ancient Phœnicia, and elsewhere, there were certain forms of the Deity called Bætuli, which were a peculiar kind of conical shaped stones which were erected in remarkable places, and were from time to time anointed with oil, wine, or blood. The custom is supposed to have arisen

from setting up meteorolites ; and we remember with interest that Diana of the Ephesians was said to be an image which fell down from Jupiter, doubtless a meteoric stone originally, and subsequently fashioned in a peculiar way. Eusebius (I quote from Smith's *Dictionary*), says that Bætuli were believed to be stones endowed with souls, and created by Uranus (Οὐρανός, the heaven). Bætulus, when personified, is called a son of Uranus and Ge, and brother of Ilus and Chronos.

The word Bætulus and its connexion with heaven and earth, the sun and time, induces us to bestow a few words upon it. If what Eusebius relates was true, each such stone would be supposed to be the habitation of a portion of the spirit living in heaven, and as such would be in the Phœnician tongue Beth-el, or in the Babylonian, Bit-il or Bit-ilos, *i. e.*, House of the Sun, which would readily degenerate into the Bit-helios, House of the Sun, ἥλιος of the Greeks ; and it is from Greek writers that we hear of Bætuli.

I need not remind my hearers how Jacob, on the morning after his memorable dream, raised up the stone which he had used for a pillow, poured oil upon it, and called it Bethel. This coincidence would be insignificant if it stood alone, but it becomes important when we find that one of the ancient aboriginal Gods of Hindostan, and one to whom worship is still offered in a way we shall subsequently describe, is called *Betel*, or *Vetel*, and that he is represented apparently by an upright stone. Bætuli amongst Phœnicians, Betel amongst the Indians, and Bethel in Palestine are too closely allied in form not to attract our attention, especially when in all they are connected with a similar form of worship. It may be said that Jacob called the place, and not the pillar, "Bethel;" but as the place could only be recognised by the pillar, and the pillar was the very spot which he named, the objection stands for little.

It is tolerably clear that the pillar was sacred, and as such was anointed.

If we pursue this word as representing a sacred emblem, by investigating proper names apparently derived from it, we find Batalus and Bathyllus amongst the Greeks, and Vetulinus, Vitalis, and the Vitellii amongst the Romans; nor can I altogether pass by the fact, that the most ancient name amongst the French for the Phallus is spelled *Vit*.

When once the idea was received, that an upright stone represented the Deity, or one of his attributes, we can easily conceive that the imagination of man would vary the symbol. Some would select for the emblem a mass of vast bulk; others would prefer length to breadth; some would select a red, others a white colour, and adopt a curved, rather than a straight stone. The transition from a rough and unhewn block to a polished one would naturally follow as wealth increased, and rudeness merged into civilisation. As society began to indulge in luxury, we can readily understand how the tall stone would become the stately pillar, and the conical bit of rock would be the elegant minaret. A farther outgrowth from the ideal form would naturally follow the development of the primitive faith.

The simple stone was emblem of a single idea; one which ultimately expanded amongst the Babylonian and Assyrian races into the belief that the Deity was fourfold. There were four great Gods:—Arba-il, from whence the name of *Arbela*, so well known and so very ancient, was derived. What was at first a simple pillar, became now a four-sided obelisk, or a towering triangle, whose bulk told of vastness, whose pyramidal form perpetuated the ancient conical notion, whose height told of majesty, and whose four sides told of the four parties in the creation of mankind and the world in general.

As the playful fancy of the devotees of the Bætuli

increased with their luxury, the image became developed into forms known amongst the Greeks as *Hermæi*, ἑρμαῖ,—a word coming, I presume, from the Phœnician and Hebrew word אָרַם, *aram*, “to be high,” “to swell up, to exalt oneself;” or, possibly, from אָרַם, *aram*, “to be or to make naked,” “to be high;” there is also אַרְמָה, *armah*, “craftiness, guile;” and אֵרֶמָה, *airemah*, “a heap of ruins or fragments.” Greek, ἑρμα.

If our etymology be correct, we shall expect to find that the *Hermæi* are some way-connected with the Phallic idea (and with cunning?). That they are so is evident, in corroboration of which we quote an article from Smith.—“*Hermæ* were statues, usually composed of a head, generally that of the God *Hermes* (*Mercury*, it must be remembered, was represented as being very cunning, and as the patron of thieves), placed on a quadrangular pillar. *Hermes* presided over journeys, traffic, roads, boundaries, &c. He was represented by a block of marble or a heap of stones. To such heaps everybody who passed added a pebble.”

“Another form of making a boundary was a stone pillar (at first unhewn), the sacred character of which was marked by pouring oil upon it, and adoring it. The first attempt at artistic development was by adding a head, and afterwards other members of the body, at first with a symbolic meaning. *The phallus formed an essential part of the symbol*; probably because the divinity represented by it was, in the earliest times, the personification of the powers of nature. So the symbol is described by *Herodotus*, who ascribes its origin to the *Pelasgi*. *Pausanias* gives a similar account, and adds that the *Arcadians* were particularly fond of the *four-sided ornament*.”

“These *Hermæ* were much venerated at *Athens*, and every house had one. They were placed in front of temples, near to tombs, in the *gymnasia*, *palæstræ*, libraries, porticoes, and

public places ; at corners of streets, on high roads, as sign-posts, with distances inscribed on them ; and some are still to be seen at Athens with the names of victors in the gymnastic contests engraved thereon."

"In process of time a torso was added, and after that the quadrangular pillar was grooved, to indicate the legs." We need not pursue the history farther. But we may advert for a moment to the fact that stones were used in some places to typify the feminine rather than the masculine element of creation ; for example—the representative of the Paphian Venus, the most popular one of antiquity, was a conical stone. Tacitus thus speaks of it : "The statue of the Goddess bears no resemblance to the human form. It is round throughout, broad at one end, and gradually tapering to a narrow span at the other, like a goal. The reason of this is not ascertained. The cause is stated by Philostratus to be symbolic."¹

"In all Cyprian coins," says Lajard, *Recherches sur la Culte de Venus*, "from Augustus to Macrinus, may be seen in the place where we should anticipate to find a statue of the Goddess, the form of a conical stone. The same is found placed between two cypresses under the portico of the temple of Astarte, in a medal of Elia Capitolina ; but in this instance the cone is crowned. In another medal, struck by the elder Philip, Venus is represented between two genii, each of whom stands upon a cone or pillar with a rounded top. There is reason to believe, that at Paphos, images of the conical stone were made and sold as largely as were effigies of Diana of the Ephesians at Ephesus."

Again we read in the same Author, "Medals and engraved stones demonstrate that the hieratic prescriptions required that all those hills which were consecrated to

¹ *History*, book ii., c. 3,

Jupiter should be represented in a conical form. At Sycione, Jupiter was adored under the form of a pyramid."

Again,—“The cone was one of the symbols peculiar to many of the gnostic sects. It had sometimes a funereal sense. A cone in the possession of Mons. Lajard, and which was found at Aleppo, proves that in the first centuries of our era the conical form was also employed for Christian monuments, since the one in question has engraved upon it the bust of Christ, with the letters X P I C T O Y. Below the bust there is a fish.

Both the cone and the phallus had the double sense of life and death. The Divinity represented by the cone was androgynous; and the Author gives a plate of the individual whom he supposes to be Venus, of which I have attempted to make a copy. In different other medals of which he gives us examples, the Goddess is represented as a Hermes, sometimes as standing on a square stone. The union of ideas about the cone, the square, and the pillar are seen in the pyramids and obelisks, and the frequency with which altars were made conical, square, cylindrical, or with an union of all these forms. The cone was essentially a female emblem. The pillar was a male sign. The square, or the four-sided cone, was the emblem of the union of the sexes.

Lajard also adds, that “Monsieur Creuzer found amongst the ruins of Carthage a large conical stone, which he considered to be a representation of the female Venus.” He also mentions many smaller cones which he had found in Greece, some of them bearing the name Aphrodite. In Gozo a conical monumental stone was found in one of the niches of the ruins of a temple which had been sacred to Astarte. Many other small cones have been found that have evidently been worn in personal ornamentation, or as charms, and these have usually been engraved with doves or other mystic devices. It must be noted that Lajard

is speaking of the androgynous Venus, the Celestial mother from whom all creation was supposed to emerge, not the Grecian Goddess of desire.

On returning to one of the ideas—that of strength, or height, or both combined—which the Bætuli involved, we may ask if the *stone* was the only form it took? Surely, other emblems might be adopted to illustrate the same notion. They were so; and the stump of any tree, especially the oak, and the growing pine and palm trees, were almost equally sacred with the pillar. One of the ancient Hebrew names for the oak was אֵלֶּה, *Elah*; אֱלֹהִים, *Alah*; and אֵלֹן, *Elon*; the second of which, *i. e.* Alah, is one of the names of the Creator, and the original of the Allah of the Mahometans. When we recognise the fact, that the emblem was intended to represent length and strength, we can readily understand that the human thumb or finger, standing alone, might typify the same notion. Such was in reality the case; and these became, with the palm and pine tree, symbolic of the same thing. In Drogheda, there exists in one part a tall pillar tower, and in another a pointed rock, whose name is “The Lady’s Finger.” Both seem to have a similar meaning, and represent the Creator in the same form as that under which Hindoos worship him, *i. e.* as Mahadeva.

The varied forms in which the pillar idea has developed itself is very curious. A broken column is to this day an emblem of the death of a warrior or other conspicuous man. The ancient altars were of pillar form; sometimes cylindrical, sometimes four-sided, and sometimes triangular, as we have already noticed. Solomon adorned the two pillars, Jachin and Boaz, which he placed in the porch of his temple (see 1 Kings vii. 19–21), with abundance of lilies and pomegranates, whose mystic significance is well known to the curious; and the Christian hermits, of whom Simeon Stylites was a very conspicuous example, thought that a

dwelling upon and prayers offered from the summit of a pillar were pre-eminently proper. In this we see reproduced the notion current at the Temple of Surya, at Hierapolis, and thus set forth by Lucian. After describing the temple, &c., he says, "Moreover, we see in the vestibule two enormous phalli, thirty fathoms high, with this inscription—"These Phalli have been raised by me, Bacchus, in honour of Juno, my mother-in-law." After describing two other sacred images, conspicuous for their Priapic size, and sundry other things, he continues—"All those who raise phalli to Bacchus place upon their top wooden men (a custom still to be seen in many an ancient Hindoo temple)—why, I cannot tell, unless it be to imitate the man who ascends. And this is how the latter manages:—He passes a thick chain round the phallus and his own body; then he mounts by means of little bits of wood which stick out, large enough for him to stand upon; as he rises, he takes up the chain with him. . . . Having arrived at the top, he lets down another chain which he carries with him, and by its means he draws to himself everything which he requires—wood, clothes, utensils, &c. With these he arranges a dwelling, a sort of nest, in which he sits during the seven days he sojourns there. The crowd which arrives bring him gold, silver, or copper, and place these offerings before him, and then retire, leaving their names. Another priest is present who shouts these names, and when the top man hears them he offers a prayer for them. While praying, he strikes upon a brazen instrument, which makes a loud and discordant noise. The man does not sleep. . . . The reason of the ascent is, that the people are persuaded that the man, from this elevated spot, converses with the Gods, and asks from them the prosperity of all Syria, and that they hear his prayer, seeing that he is so near." There is strong reason to believe that the "high places,"

of which the Jews built so many whereon to offer incense, &c., were simple pillars, resembling in some respects the Lingams of Hindostan, and the round towers in Ireland.

The abundant use of pillars in sacred edifices seems to have preceded, for a long period, their use as ordinary architectural contrivances to economise space, or to increase elegance of design.

We have seen that the pillar was considered as a sort of embodiment of the Almighty in remote antiquity. There was also the expression "God is my witness," just as we have at the present day "So help me God." We have also frequent examples, amongst the criminal classes, of an expression equivalent to "As I now stand in the presence of the Almighty," as the sort of affirmation or oath to which they attribute the greatest sanctity. We shall be prepared, then, to find that the pillar was in ancient times used to represent the Great Judge as if present. In default of any other antique repository of ancient customs, let us turn to the Old Scripture writings, and glean from them the uses that pillars were put to. We find Jacob erecting one, מַצֵּבָה, *mazebeth*, as a memorial of his dream, and a second one as a memorial of his wife Rachel. He also erects a pillar and a heap, as a witness of a compact, a sort of terminus, beyond which the contracting parties would not pass. Compare this with the Roman Terminus, or Hermes.

We then come upon two prohibitions, to the effect that the Israelites should not set up any standing pillar, מַצֵּבָה, *mazebah*, or figured stone (Levit. xxvi. 1),^a as it, מַצֵּבָה, *mazebah*, was hateful to the Lord (Deut. xvi. 22); but it is clear that the pillars meant in the prohibition were unmis-takeable phallic emblems, else we should not find Moses

^a This verse is thus rendered in the Vulgate:—"Non facietis vobis idolum et sculptile, nec titulos erigetis, nec insignem lapidem ponetis in terra vestra, ut adoretis eum."

himself building an altar and twelve pillars, מַצֵּבָה, *mazebah* (Exod. xxiv. 4);³ nor should we have had the pillar of fire and cloud as the visible form assumed by the Almighty. Farther on (Deut. vii. 5),⁴ it is clear that the Phœnicians or Canaanites used pillars in worship, for the Israelites were told to destroy them, with the groves and graven images, when they entered the Promised Land.

Joshua sets up twelve stones, אֲבָנִים, *abnim*, in Gilgal, as soon as he enters Canaan, as a memorial; and the departing tribes set up what is called an altar, or a memorial; while in after times, Absalom rears up a pillar, מַצֵּבָה, *mazebeth*, for a remembrance of himself, as he had no child (2 Sam. xviii. 18). Of the two pillars of Solomon, I need not speak again; but pass on to the time when Josiah was crowned, and where we find him standing by a *pillar*, עֲמֹד, *amud*, as the manner was (2 Kings xi. 14).

From this it is abundantly clear that some pillars, then as now, were used as memorials of some important event, or of some departed man or woman, just as we erect columns to Nelson, Wellington, and others, or raise tombstones in all forms over our dead. It is equally clear that others had a phallic significance, which did not, however, in the smallest degree, prevent them being looked upon as divine emblems. Any one familiar with the sacred writings cannot fail to be struck with the veneration with which the *grove* was regarded by some, and the enthusiasm with which it was destroyed by others. The Hebrew word for that translated *grove* is אֲשֵׁרָה, *asherah*. This word has a number of relations—*ash*, *asher*, *asha*, *ashua*—and we have some cognomens compounded

³ In the Vulgate this verse runs thus:—"Scripsit autem Moyses universos sermones Domini: et mane consurgens edificavit altare ad radices montis, et duodecim titulos per duodecim tribus Israel."

⁴ In the Vulgate this verse runs thus:—"Quin potius hæc facietis eis: Aras eorum subvertite, et confringite statuas, מַצֵּבֹת, *maseboth*, lucosque succidite, et sculptilia comburite."

from it, as *Ashbel* and *Ashban*. The significations are "heat, fire, man, woman, being, pillar." Leaving philology here, I will copy the account which Fürst's *Lexicon* gives of *Asherah*. He says, "The name is that of a Phœnician Goddess, who is sometimes identified with the Sidonian Astarte, and who stands beside ^{בַּעַל}, *Baal*. In usage, the word denotes—(1) the idol of this female deity *consisting of a pillar*, and it is identical with the image pillars of Ashera. (2) The female deity of the Tyrians, whose worship Jezebel introduced into Israel. (3) The image pillar of this Goddess, in whom a plurality of forces were united. The images of Ashera were upright wooden pillars, or stems of trees, whose tops and boughs were cut off, and which were worshipped as symbols of the Phœnician Nature-God, partly as the *numen* itself. The word is usually derived from אֲשֶׁרֶת, *asher*, "the Goddess of good fortune;" but considering that *ashua* denotes a pillar, and אֲשַׁר, *ashar*, signifies "to be erect," it appears to be more correct to explain *ashera* as "the spouse or husband," and cognate to the Phœnician אֲסַר, *asar*, equivalent to Osiris." I may add that אֲשַׁח, *ashah*, signifies "to be firm," and "to be firmly fitted together," a word which in itself unites the idea of an androgynous deity, and that intimate connexion between the sexes which produces a new being.

That the pillar stone was at the same time a phallic emblem, and the representation of the Creator, none can doubt, whose knowledge of ancient ways of thinking is great, and whose modern reading is extensive. In many a Hindoo temple, whose "adyta" are open to British though not to native eyes, a rude stone of curious shape represents the God. I cannot now lay my hand upon a narrative which I lately read, telling of the wink or leer with which the officiating priest of some temple in India pointed out the nature of the object worshipped, and of his request that the visitors would not tell the worshippers; but it recalled the lines of Moore—

à propos of Mokanna, the veiled prophet of Khorassan—"Ye would be dupes and victims, and ye are." It is impossible to read much of the Gods of Hindostan without seeing how strong an element runs through all of them of the Creator being represented by the particular organs which are essential to the formation of a new being upon earth.

It was so in ancient days in Western Asia. We scarcely need turn to the history of Ham and Noah, and other well-known narratives, to show that the real organ was held in profound esteem. By it Abraham made his steward swear, when he wished to bind his promise most effectually.⁵ Even amongst the Jews, those who had been seriously injured in any part of the essential organs of the male were not allowed to enter into the holy congregation.⁶

The evidence of pillar stones having had a phallic meaning, is inferential as regards some nations; amongst others it is all but demonstrated. In the scenes of love depicted at Pompeii, and their number is considerable, we find, in almost all, that the pillar is introduced as a witness, or because that which is being done is appropriate to the Hermes.

In one remarkable scene, a priest pours a libation on a slab, in front of a pillar which is adorned by oak boughs,

⁵ "Another primitive custom which obtained in the patriarchal age was, that the one who took the oath put his hand under the thigh of the adjurer (Gen. xxiv. 2; xlvii. 29). This practice evidently arose from the fact that *the genital member*, which is meant by the euphemic expression *thigh* (יָד), was regarded as the most sacred part of the body, being the symbol of union in the tenderest relation of matrimonial life, and the seat whence all issue proceeds, and the perpetuity so much coveted by the ancients. Hence this creative organ became the symbol of the Creator and the object of worship among all nations of antiquity; and it is for this reason that God claimed it as the sign of the covenant between himself and his chosen people in the rite of circumcision. Nothing, therefore, could render the oath more solemn in those days than touching the symbol of creation, the sign of the covenant, and the source of that issue who may at any future period avenge the breaking of a compact made with their progenitor." C. D. Ginsburg, in Kitto's *Cyclopædia of Biblical Literature*, s. v. *ОАТН*.

⁶ Deut. xxiii. 1.

and surmounted by a leaf of the Quince. This leaf was emblematic. The fruit of the tree was eaten, because it was believed to increase the virile power; and the oak leaves were equally symbolic, typifying that the pillar was strong as the oak, and as enduring under trials. I have already expressed my opinion in the Society, that the round towers of Ireland were built in imitation of high pillar stones, and were nothing more than phallic emblems, and I need not revert to the subject now. Some have doubted whether the idea of Christianity, and of reverence for any phallic emblem, could have existed side by side; but that they have so done, we have abundant evidence in Old France, up indeed until the close of the sixteenth century, and even later.

A difficulty which has been felt by some, is to reconcile the notion of a phallic emblem being used as a memorial stone. To me the difficulty was insuperable, until I read an account of the opening of a child's grave at Cumæ, near Baiæ. In it lay the ashes of the once endeared youth; around them were placed a doll's chair, table, and many another toy, all betokening a keen sense of love and memory. Yet the chief part of the excavation was occupied by a huge phallus of red clay. In the same part of the country, to this day, this emblem is held to be powerful in averting the evil eye; and if in Christian Naples an effigy of the "fascinum" is held to be powerful against demoniac influence, we readily believe that a tender Etruscan may have placed one in the tomb of a darling child, to scare away Typhon. Again, if we visit our own cemeteries, we find our tombs adorned with those emblems which are most revered amongst us—the cross, the solar wheel, and some other mortuary emblems copied from Pagan sources. Surely, if we erect a sacred symbol as a memory of the dead, the ancients may have done so too; and of the many signs which have descended to us, none seems to be so ancient, so persistent, and so hallowed,

as that which was used to represent on earth the Creative Power on high.

The strongest evidence we have of the phallic nature of certain stones is from India; and the following quotations are from the pen of Mr. Edward Sellon, author of *The Monolithic Temples of India*, &c., and which I find are abridged from writings in the *Journal of the Royal Asiatic Society*. "Benares, however, is the peculiar seat of this form of worship. The principal deity, Siva, is a Linga, and most of the chief objects of pilgrimage are similar blocks of stone. No less than forty-seven Lingas are visited, all of pre-eminent sanctity. In the opinion of those who compiled the *Puranas*, Phallus was first publicly worshipped by the name of Basewarra-Linga, on the banks of the Cumudoati, or Euphrates."

This author, like others, shows how strong was the similarity between the Egyptian and Grecian mysteries and those of India, not only in general matters but in detail. It is unnecessary to follow him farther, and I will close my quotations from him with the record of his idea of the effects of this style of worship upon those who practise it. "One of the most accomplished Oriental scholars of our time, to whom the public is indebted for a *Teluga* dictionary and a translation of the Bible into the same language, a resident for thirty years in India, has recorded his judgment that, on the questions of probity and morality, Europeans (notwithstanding their boasted Christianity and morality), as compared with the Hindüs, 'have not much to boast of.' The same author adds—what I do not remember to have met with in any other writer—"that the Linga of the Assyrians was typified by a cone, numerous specimens of which were found projecting from the walls of the palace at Nimroud, of which examples may also be seen in the British Museum."

With these pillars, of which we have already spoken,

whether they were shapely or unhewn, were associated stone circles, or stone heaps. The latter, usually called cairns, are found in great numbers in Britain and Brittany, are common throughout the shores of the Mediterranean, and may be traced from Britain to Central Asia, probably farther. In ancient times, they were abundant along every highway in Greece and Rome, and at last seem to have been adopted as mile-stones.

There is something curious in the idea of throwing stones so as to make a heap to commemorate a hero, and that the menhir should be more efficacious *with* the cairn, than when standing alone; and the strangeness of the custom leads us to surmise the probable idea which originated it. We shall have no difficulty in tracing this, if we investigate the subject as ancient Orientalists; but if we act as modern Englishmen, the reason will surely escape us. It is simply that a phallus with many stones must necessarily be stronger than one with two.

These cairns were sometimes of enormous dimensions, of which we have an example in Avebury, and in Silbury Hill; and they were places whence laws could be promulgated, or where judgment could be given, or counsel taken. The tourist sees such a hill in the Isle of Man, on which the Governor is seated when he ratifies certain laws, already agreed upon by the legislature of the Island, and from which he promulgates them. The Tynwald Hill is not the seat of the government, it is, in fact, little more than a locality; but it is resorted to on certain days by the inhabitants of all parts of the Island, and becomes for a time the centre of law, trade, and conviviality.

There is something, but we cannot tell how much, in common between the cairns of which we speak and the vast pyramids erected by the Egyptians, the Burmese, and the Mexicans. As human nature is much the same everywhere,

we can readily conceive that sacrifice on high places has been adopted partly because the victims were made to approach nearer than they had been before to heaven, and partly because a great multitude might better see the offering when presented on an elevation, than when it was sacrificed on the level.

There is something strangely congruous between the religious ceremonies of peoples wide as the poles asunder. The Israelite used a knife of flint by which he cut off a part of his person; the Mexican used the same sort of implement when he cut open his living victim, so that he might tear the heart from its tenement and present it to the Sun, although he, like the Hebrew, was familiar with a metal hard enough to cut stone. The Mexican ruthlessly sacrificed the choicest of his youths on a pyramid of enormous height; the Oriental prepared to do the same upon a natural mountain. Baal fires were lighted on the towering heights of ancient Hermon, and similar ones blaze still from time to time on the hills of Ireland and Scotland.

Leaving the cairns, we may say a few words about the Stone Circles, so common in our own Islands, and in Brittany.

Colonel Leslie more recently, and Godfrey Higgins anteriorly, have clearly shown that they were of the nature of temples or churches—spots in which the people could and did meet to go through religious ceremonies—to hear expositions of faith and practice, and to take counsel in solemn conclave. In these stone circles there was one fragment always removed to admit of the entrance of the party, although the space between each upright was ample enough to admit every individual going at once to his own peculiar stone; and there was either one or a pair of conspicuous stones, opposite to which the chief performers stood; whilst in front of these was a recumbent stone for sacrifice.

There is something curious in these circles, as linking the past and dark with the present and comparatively enlightened times.

At Stonehenge we see huge trilithons, with the transverse rock mortised to the two uprights, the tenon and hole evidently having been worked by stone celts, hammers, or axes, thus showing, apparently, the absence of any iron or bronze tool. In the circle at Gilgal we see the circular fane associated with the use of flint knives, although the context demonstrates that there were silver trumpets, which could scarcely be made without tools. There were carved stones also, which imply a knowledge of the lapidary's art; Babylonish garments, which tell of looms that could scarcely have been made without metal tools; an ark and staves, which imply a knowledge of carpentry, and a variety of other details, which demonstrate the advancement of the arts of civilised life; yet, for the cutting of flesh, flint is preferred to iron or steel. But if we think of what is going on around us, we can readily understand how one portion of the actions, habits, and customs of a nation may remain unchanged, whilst others appear to advance. In all countries that I know, every thing connected with religion is essentially stable, except, perhaps, doctrine; few can tolerate change, either in the form of worship, the rites used, or the nature of the house of meeting; and though time has to a certain extent made the cruciform a more common shape for our churches than any other, there are still a few circular fanes which tell of a probable descent from the ancient stone circles which formed the basilics of our remote forefathers. Cruciform temples also exist in India which are of very ancient date.

I purposely omit entering into the statement that in Scotland, 'going to the stones' is used as an equivalent for

going to church, as the subject is too important not to require a special dissertation.

As these circles were sacred, so they were adapted for burials; and the faithful were interred around them, just as our dead are usually deposited in the churchyard around the church. The barrows within sight of Stonehenge may have received as many bodies as the graveyard around the Church of the Innocents in Ancient Paris; and then, as now, the *enceinte* of the circle may have received only the remains of those men whom a nation loved to honour, just as our illustrious dead repose under the dome of St. Paul's, or beneath the roof of the Abbey at Westminster, whilst the less distinguished ones repose around the fane.

Some have argued upon the improbability of the relics of a rude age being, under any circumstances, compatible with the existence of advanced, or, as some would say, an enlightened civilisation; but the allegation is of little worth, for not a year elapses in which the newspaper reader in Britain does not find instances of a belief in witchcraft, and of an adoption of superstitious practices amongst ourselves, existing side by side with the electric telegraph, the railroad, the steam-boat, the church or chapel, the national school, and an earnest priesthood of all denominations; and some, to their shame be it spoken, who wear broadcloth, silk, satin, lawn, or velvet, believe in the balefulness of *thirteen*, the power of the evil eye, and the influence of charms and religious emblems. Whilst others, equally high in society, and equally educated with the most erudite amongst us, converse through "media" with the dead.

The Galgal, which is the modern as well as the ancient name for the stone circle, was a place for the administration of justice, as well as for religious rites. To such an one Samuel the Prophet went in circuit ever year; nor can we wonder at such an occurrence amongst ancient people,

where as a rule the priest had more power than the king. We have seen how Samuel dictated to Saul to undertake an enterprise, apparently quite irrespective of *policy*; and profane history has told us how certain Egyptian priests used to dictate suicide to the monarch, whenever they thought he had reigned long enough.⁷ Without dwelling upon the connexion of priestly, judicial, and kingly power, we may advert to the practice, still current amongst ourselves, of using the parish church as the place in which the election business of the parish is attended to. We have made no scruple until recently of using the sacred building during the week days for ecclesiastical voting, so as to discover the decision of a majority; nor did the worshippers in the stone circles have any greater compunctions. Of the general sanctity in which these circles were held, their persistence to the present day is evidence. To plunder the stones was as bad as the commission of sacrilege; and the peasant dreaded to remove them as much as a peer would avoid destroying the venerable minsters which have replaced their rude progenitors.

Let us now, leaving these general considerations, turn our eyes to India. There, "in the Dekkan," says Leslie,⁸ "Cyclopean monuments are to be seen, constructed in all the varied forms in which they are to be found in France and Britain. Monoliths, arranged in circles single and consecutive, in ovals and oblongs, in single and in several parallel lines, and occasionally numerous circles in one of larger dimensions,—all these varieties may there be found in connexion with dolmens, kistvaens, galgalls, barrows, and other primitive stone memorials, that exist in Britain and Armonica. The simple fane and the elaborate inelegant pagoda are often

⁷ Rawlinson's *Herodotus*, vol. ii., p. 36.

⁸ *Early Races of Scotland, and their Monuments*, 1866, 2 vols. 8vo. Edinburgh, Edmonston and Douglas.

very near each other. That the simple cyclopean fanes preceded the skilfully designed and elaborately executed Buddhist temples of the Dekkan, none can doubt. That the former would continue to be erected a thousand years after the rock cut temples were deserted, without being destroyed, could never have been imagined ; yet so it is." After describing some circles which had been renovated and used immediately before he examined them, Colonel Leslie writes, "The sacrifice used in these high places is generally a red cock, sometimes a white one. The blood of the sacrifice is offered to the spirit, but the votary wisely retains the flesh of the animal ; the savour of its blood being deemed a substantial enough repast for the unembodied being whose favour it is sought to propitiate, or whose wrath it is intended to appease. It is probable that the sacrifice of cocks and goats is but the representation of bloody sacrifices, in which at some former period nobler animals, and even human beings, were involved. Within the last twenty years, human sacrifices were offered by the Khonds of the Indian peninsula.

"The spot of red paint put over the whitewash on the inner side of each stone I believe to be typical, and to be occasionally used in place of the blood which, from motives of policy, humanity, or economy, some modern votaries are unwilling to shed." The cock was offered, I believe, on the stone in front of the two large ones. "In Ceylon, the person who proffered the sacrifice bit off the head of the cock, and thus ensured a thorough sprinkling from the blood of the offering. The other stones within the circle were used for divination. It was believed that, when lifted, these stones felt weighty or light according to the degree of merit achieved by the votary in his sacrifice." After a few remarks upon the irregular number of the stones in the circuit, Leslie quotes from *The Statistical Account of Scotland* the follow-

ing:—"On All-Saints even they set up bonfires in every village. When the fires are consumed, the ashes are carefully collected in the form of a circle. There is a stone put near the circumference for every person interested in the bonfire, and whatever stone is moved out of its place, or injured before next morning, is devoted or "fey," and is supposed not to live twelve months from that day." "These rites," says Dr. Jamieson, "can be viewed in no other light than as acts of Devil-worship." The Colonel continues:—"The ceremonies and sacrifices in most of these rude temples of the Dekkan were in honour of the God Vetat or Betal, who is called a Demon by the Brahmins. The reason for the dislike may be, that any individual may sacrifice to them without the interference of a Brahman."

I cannot follow Colonel Leslie farther upon this subject, nor go through all the steps by which he traces the existence of the ancient race from India to Europe, but will go on to a reference to the sculptured or inscribed stone, called the "Newton Stone," found in Aberdeenshire, and which presents two inscriptions, one in letters of unknown relationship, the other in Ogham characters. Various attempts have been made to translate it. Dr. Mill, says Leslie, thus reads it:—"To Eshmun, God of Health! by this monumental stone may the wandering exile of me, thy servant, go up in never-ceasing memorial, even the record of Han Thanet Zenaniah, magistrate, who is saturated with sorrow."—Phœnician. I pass by some fragmentary ones to come to Dr. Moore's translation. After giving a long account of the similarity of the letters which are found on the stone to many which are found in ancient caves in India, he concludes that the writing is ancient Arian, but that its signification is Phœnician, and he reads the inscription thus:—"In the tomb with the dead (is) Aittie, the light of the darkness of a perverted people, who shall be consecrated pure priest to

God. Like the vessel of prayer my glory covered me." The Oghams he gives thus:—"When Baal ruled Jutland and the Coast before thee, Iatti was smitten." We may fairly doubt the translations, but we *cannot* doubt that the author of the inscription was acquainted with *letters* belonging to two distinct alphabets, and was in possession of a *graving tool* sufficiently hard to enable him to cut them into the rock,—all of which tell of travel, literature, and art, which existed in Scotland before the time of the Picts, and are as interesting as some British monument in New Zealand may be when England, like Tyre, has lost her maritime supremacy—perhaps even the memory of her own greatness—and has been compelled to abandon her missionary-formed colonies to their original barbarism; to give up the intellectual to the brutal instinct; and to withdraw the preaching of that religion which strives in vain against human instincts, until it has had time to train them, through many generations, into the belief that it is better to trust in spiritual directors than in their own rude arm of flesh.

Whether he who erected, and caused to be carved, the stone of which we speak was one of the Indo-Germanic stock, some mariner in a Phœnician galley, or some Lascar resembling the shivering creatures which occasionally are seen in our streets, none can tell. But so long as the stone remains, it seems to afford evidence that our country was not wholly peopled by savages whom ancient traders avoided.

There is a great number of pillar stones in Scotland; many are sculptured after a rude fashion, and are almost precisely similar to those existent in India and Ceylon. Elephants are depicted upon some, the legs terminating in scrolls, just in the same fashion as they are depicted in the East. It is singular to see copies of elephants so far from their ordinary habitat; still more curious is it to find that the artist is as conventional in Scotland as in Hindostan. Amongst the

most numerous of the emblems sculptured are the crescent and the triangle, the serpent, the fish, the mirror, the comb, and the horse-shoe. This fact is particularly interesting to the student of ancient times. He recognises in the crescent and the triangle symbols of the maternal creator. The serpent has long been recognised as an emblem of desire or love, or by whatever other name the "heat" of animals is spoken of amongst men. The fish has been sacred to Venus, or the female deity, from time immemorial; it is still eaten amongst ourselves on Venus-day, Friday—*à propos* of which I may quote a curious passage from the learned Felix Lajard: "De nos jours en effet les Druzes de Liban dans leur vêpres secrètes, rendent un veritable culte aux parties sexelles de la femme, et le leur rendent chaque vendredi soir, c'est à dire le jour qui fut consacré à Vénus, le jour auquel de leur coté, les musulmans trouvent dans le code de Mahomet la double obligation d' aller à la Mosquee et d' accomplir le devoir conjugal." So far as I can learn, the fish, which appears so largely on the sculptured stone, has been revered in ancient times in consequence of its supposed influence in increasing virile power—it being supposed that the flesh of any creature which is conspicuous for fecundity, can impart to those who eat it a power similar to that possessed by the animal itself. The mirror, which is equally to be noticed with the fish, has long been recognised as one of the emblems of Venus. It was carried in state before the Goddess Isis in her processions. The comb was used as an euphemism for the female organ. Clement of Alexandria, saying, "the comb is an euphemism used when we want to describe in musical language the woman's part, *μόριον γυναικειον*." This meaning is confirmed by the authority of Suidas, Pollux, and other Greek etymologists. The comb is figured in ancient Egyptian sculptures.

It is curious, but very significant, to find upon these

Scottish stones an ornament resembling a horse-shoe. It is tolerably certain that horses, in the times when these cuttings were made, were not shod as they are now, even if they were known at all, and we infer that the significance of the emblem is mythic. It is remarkable that the figures of Isis are sometimes represented with an ornament of a somewhat similar shape to the crescent moon. The old ring money of Ireland and of Africa was of the same form, and there have been crescents dug up in England made of gold, which are supposed to have been worn by Arch-Druids on their heads, as Isis did on her own. It appears to me that the emblem is the crescent moon inverted so as to be retained on the head.

Now the crescent moon was an emblem of the female creator, Mylitta, Ishtar, Astarte, or Venus, and the goddess was known amongst the Babylonians and Phœnicians under her name *Gad*, the one *par excellence* who brought good luck. Venus the star is still looked upon as a patron of good fortune by the Arabs. The association between the female and good luck has prevailed to a considerable extent both in Europe and Asia. The Arabs of Northern Africa used to nail over the door of a house or tent the generative organ of a cow, mare, or female camel, as a talisman to avert the influence of the evil eye. Sometimes a rude figure was used as a symbol, and the form which it commonly assumed was that of a horse-shoe; whence the modern custom of using the old iron crescent from a horse's hoof as a guard against evil.

Putting all these considerations together, we conclude that the emblems which are found in such large numbers upon ancient stones in Scotland had a feminine significance; and being sculptured on a pillar—emblem of the male—the whole, pillar and ornaments, signified reverence for the mysterious androgyne from whom all things sprung.

I should like to call attention in passing to the custom of throwing an old slipper after a bride for luck. It seems to have arrived thus: a horse-shoe is emblem of good fortune, but would be too heavy a missile to throw at a bride, so another shoe is chosen. The bride is a virgin—*virgo*, she is about to become a woman—*mulier*; the French name for a slipper is *mule*, and thus the slipper was selected to wish the bride good fortune at the most critical period of the married life, i. e., when from *virgo* she became *mulier*.

Amongst the other figures sculptured on ancient stones in Scotland there are two which are extremely common; one represents the modern letter Z, with or without ornamentation; the other represents two circles united together by lines. At first sight, the last look like a pair of primitive spectacles, or a pair of eyes united by a somewhat bushy line of hair across the nose. In speculating upon the value of these as signs, I recollected that there was in ancient Moab a place called Beth or Almon, *diblathaim*; the first of which signifies literally "the temple or shrine of the two circles." A reference to ancient coins, amulets, and seals shows us that, as a general rule, the Sun, or the male creator, was represented as a star with four or more points, while the Moon, or female Creator, was represented as a crescent, and that Venus, the largest and most striking of all the planets in the eye of an Oriental, was figured as a globe of gold. But there is no doubt that the male divinity was often represented with an aureole round his head, or even a yellow or golden disc, which was understood to indicate the solar majesty. We also know that, amongst the Egyptians, the eye in various forms was used as an amulet or charm. There is then offered to the philosopher, abundance of choice as to which idea he will select for the one which dictated to the sculptor the form of ornament in question. One of the circles is sufficiently notched to lead

us to the belief that it at least was intended to represent the moon. Assuming this for a starting point, we may imagine the other to be the sun, especially as in many of the specimens the one is made much larger than the other. If so, the form of the Z would represent the ζῶγ, or yoke—emblem of union; and thus the two circles would simply be a reduplication of the idea embodied in the crescent and the triangle, and which we may shortly describe as one to which most reasonable beings still adhere, viz., that marriage is better than celibacy. The ancients enveloped the most common facts in mystery, and no wonder, for folks have ever felt that a human being, clothed with gold, precious stones, and rich stuffs, must be more powerful than a naked savage, and that truth will assume a great or small proportion, according to the ornaments with which it is surrounded.

The evidence of stones seems to show that from Central India to the British Isles there was a race as distinct and as widely spread as is the Russian of to-day.

Here I intended to complete my Essay, and for that purpose laid down my pen, but I have been so much interested with a paper, which only came into my hands six days ago, that I must add a few words respecting it. Colonel Meadows Taylor has explored many tumuli and cromlechs in India, and has so completely demonstrated their close resemblance with those in Russia, Brittany, and Britain, that he must be prejudiced indeed who does not believe that all were erected by a people possessing the same faith and custom. He goes still further, and by comparing the mode of sepulture, described by Herodotus as practised amongst the Scythians, gives us reason to believe that the British Isles contained a people of the same race. In this we quite agree. The conclusion we draw from our own researches up to the present time is to the following effect—that two great nations have been in contact in the Southern parts of

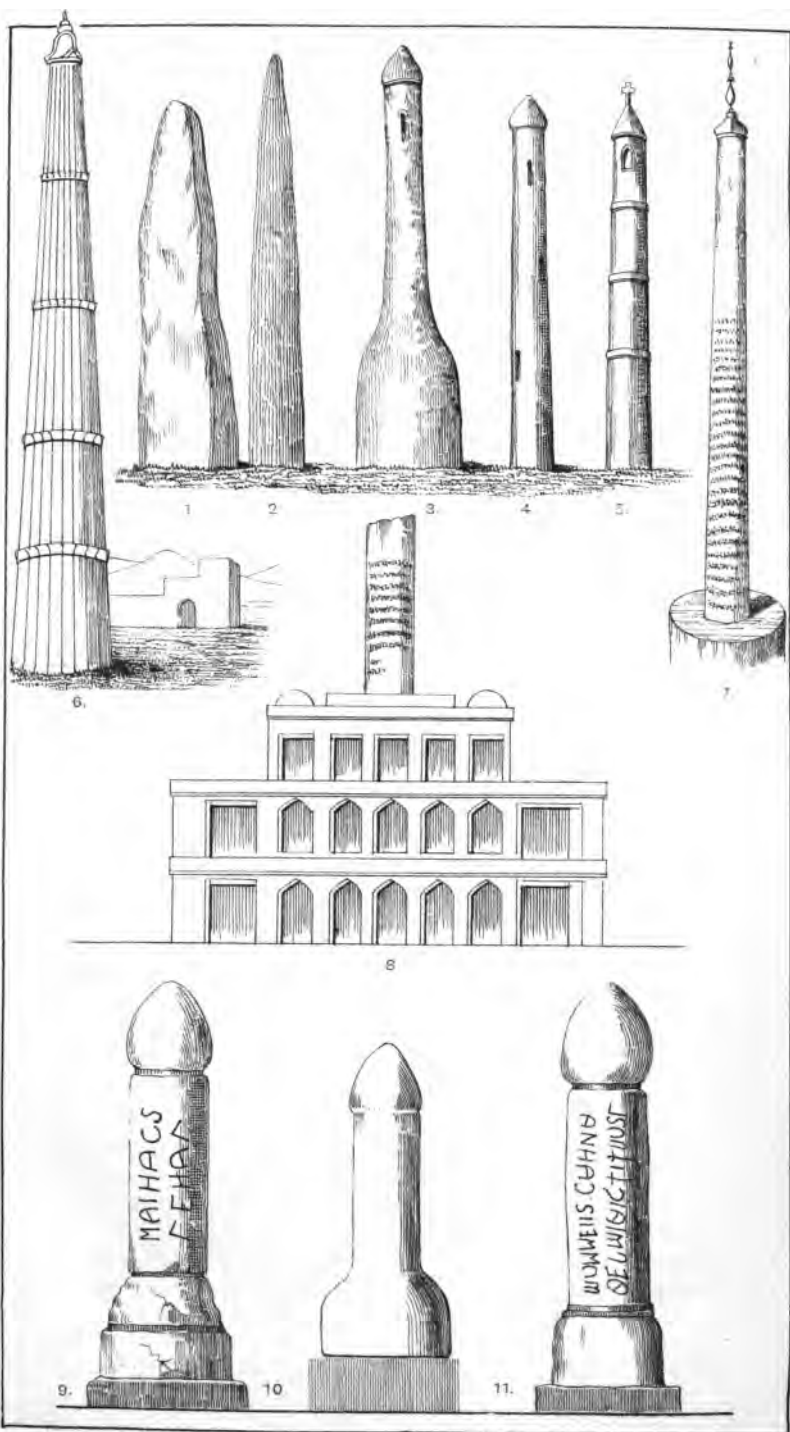
Western Asia and in Europe—one to which the names of Arian, Scythic, and Indo-Germanic have been given, was nomadic, and migrated by land; the other, to which the generic term Shemitic has been assigned, were traders, a maritime people like ourselves, who migrated almost exclusively by sea.

This is the deduction which I attempted to draw in my paper on Proper Names, and it is one which is wonderfully strengthened by our reading of "Stones."

It is easy to affirm that words in Scotland, identical, or nearly so, with words in Hindostan, are accidental coincidences, and that Honeyball in Cornwall can have nothing in common with Hannibal of Carthage; but it is very difficult to assert, and still more so to demonstrate, that the resemblance between pillars, cairns, gilgals, cromlechs, kistvaens, and mounds, in the remote East and the near West, are the result of chance. "Chance" has much to answer for, but it is the duty of the philosopher to prevent her riding rough-shod over the domain of science and literature.

DESCRIPTION OF THE FIGURES.

Nos. 1 and 2, are copied from Forbes Leslie's book entitled *The Early Races of Scotland*; they represent two different "menhirs," or tall erect stones, which exist on the coast of Brittany; both are of considerable height, the one being seventy, and the other about sixty feet in height. Similar stones exist in England, one of the largest being situated at Rudstone, in the East Riding of Yorkshire, whose whole length is estimated at forty-eight feet, and whose weight is supposed to equal forty tons. At Drogheda, in Ireland, there is another similar menhir, of considerable height, which goes by the name of "The Lady's Finger;" this has been supplemented by a round tower. These stones only differ from the Bethel stone in size; they could only have been erected by numbers; the Bethel stone was placed upright by one man, and must therefore



necessarily have been comparatively small. A stone similarly erected was by the Greeks called a 'hermes,' and it was very commonly surrounded by a multitude of small stones, sometimes sufficient to form a considerable heap, one of which is figured at 41.

Nos. 3, 4, and 5, are representations of three of the ancient round towers in Ireland; their shape is singularly suggestive of the idea which they were built to convey. One of them is in Wicklow, and at its feet are certain ruined buildings, called 'the seven churches.' The local guide informed me that at a particular time of the year,—corresponding, if I remember rightly, to the first of May,—there used to be a grand meeting around the tower, which was specially marked by rites for the cure of sterility and orgies too gross to mention. These meetings were abrogated, I think he told me, about thirty years ago. Compare Fig. 3 with Fig. 10.

Figs. 6, 7, and 8, are all Indian, and some centuries old. They are introduced to show the development of the menhir into the pillar and the minaret. In Figure 8, the union of the two domes with the column is apparently accidental.

Figs. 9, 10 and 11, are copies of posts which were found in the streets at Pompeii; two of them have inscriptions, which are considered by M. Roux Aîné (*Herculanum et Pompéi*, Paris, 1840), vol. 5, p. 206, to be written in the Oscan characters, and in a debased form of the Latin language. The longer one he reads as "Lucius Mommeius Eæna, has erected baths." The shorter one he reads as "Mainax Lenæ," and considers that the last word is "leno," the whole signifying that 'Mainax keeps a brothel.'

Fig. 12, shows the development of the menhir into the obelisc. In this the emblem becomes no longer simple, but is associated with the number four. This mystic number is rendered in the Shemitic languages by the word *Arba*, who is described as a great man amongst the Anakims, Josh. xiv. 15. Amongst the Assyrians, the Gods were described as triads, and with each trinity there was a female Goddess, who was always depicted as a virgin. These four were the originators or creators of all things. The Egyptians had a similar myth, Osiris being triple, and Isis singular. Physiologists will readily recognise the meaning of the myth, from his knowledge of those parts which are essential to the formation of a new being.

Fig. 13, is a copy of a fresco from Pompeii. It represents a pillar altar, on which are two egg-shaped bodies, and round which a serpent is entwined. In the mouth of the latter is seen another similar body, which he is squeezing in his mouth. It is unneces-

sary to inquire closely into the mystery involved, if indeed there be any intended.

Fig. 14, represents a simple pillar; its signification we infer, from its being introduced into so many of the paintings of amorous design in Pompeii.

Fig. 15, copied from an ancient coin, figured in Lajard, *Sur le Culte de Venus*, represents the celebrated conical stone, under which form that Goddess was worshipped at Paphos. Above the shrine the sun and moon are in conjunction.

Fig. 16, is copied from one of the hermes found in Pompeii. In the print from which these are taken (Roux Ainé's *Herculanum et Pompei*), there are two other hermes depicted, one of which is a Mercury, with cap, crook, and drinking-cup, and a solid four-sided pillar for legs; the other represents Priapus, with horns, a crook, and a cloak; the whole body being depicted as standing upon a square pedestal: both these have the usual emblem of the god. One of the hermaic figures bears the skin of Hercules.

Fig. 17, from the same source as the preceding, is a mixture of Hermes and Priapus. The number of figures similar to those described which have been found in Pompeii is immense, and most of them were marked by some sort of an inscription.

Fig. 18, is an Assyrian emblem of the sun, represented as a chariot wheel, the terminations of whose spokes are triple.

Fig. 19, is copied from Lajard, and represents the impression of a Babylonian seal. It delineates the Androgyne deity, and helps us to explain such symbols as the sun and moon, the amphora and cup, the lozenge and the six-headed star; and we think that we can also see the signification of the mythic dragon.

Fig. 20, is a Hindoo symbol, representing two trinities equal to each other, and infolding; it is used in worship by Buddhists, some relic or figure being placed in the central circle.

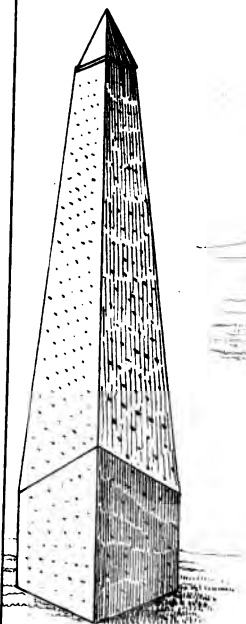
Fig. 21, represents Isis, having upon her head a figure representing the crescent moon inverted.

Fig. 22, is an attempt to represent the vestibule of the temple of the Syrian goddess, in which were two enormous phalli.

Figs. 23 and 24, are copies of two of the pillar stones of Scotland, figured by Colonel Forbes Leslie.

Figs. 25, 26, and 27, are rude representations of elephants, copied from some of the pillar stones of Scotland. In 25 and 26 the legs terminate in scrolls, similar, as the author above-mentioned says, to those found on similar stones in Ceylon.

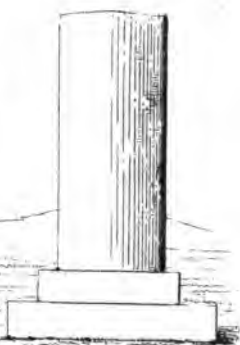
Figs. 28, 29, and 30, are from the same Author's book; they represent the horse-shoe ornament, the representative of the crescent moon of Isis, or "*la nature de la femme*."



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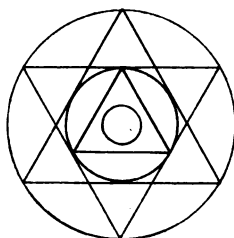
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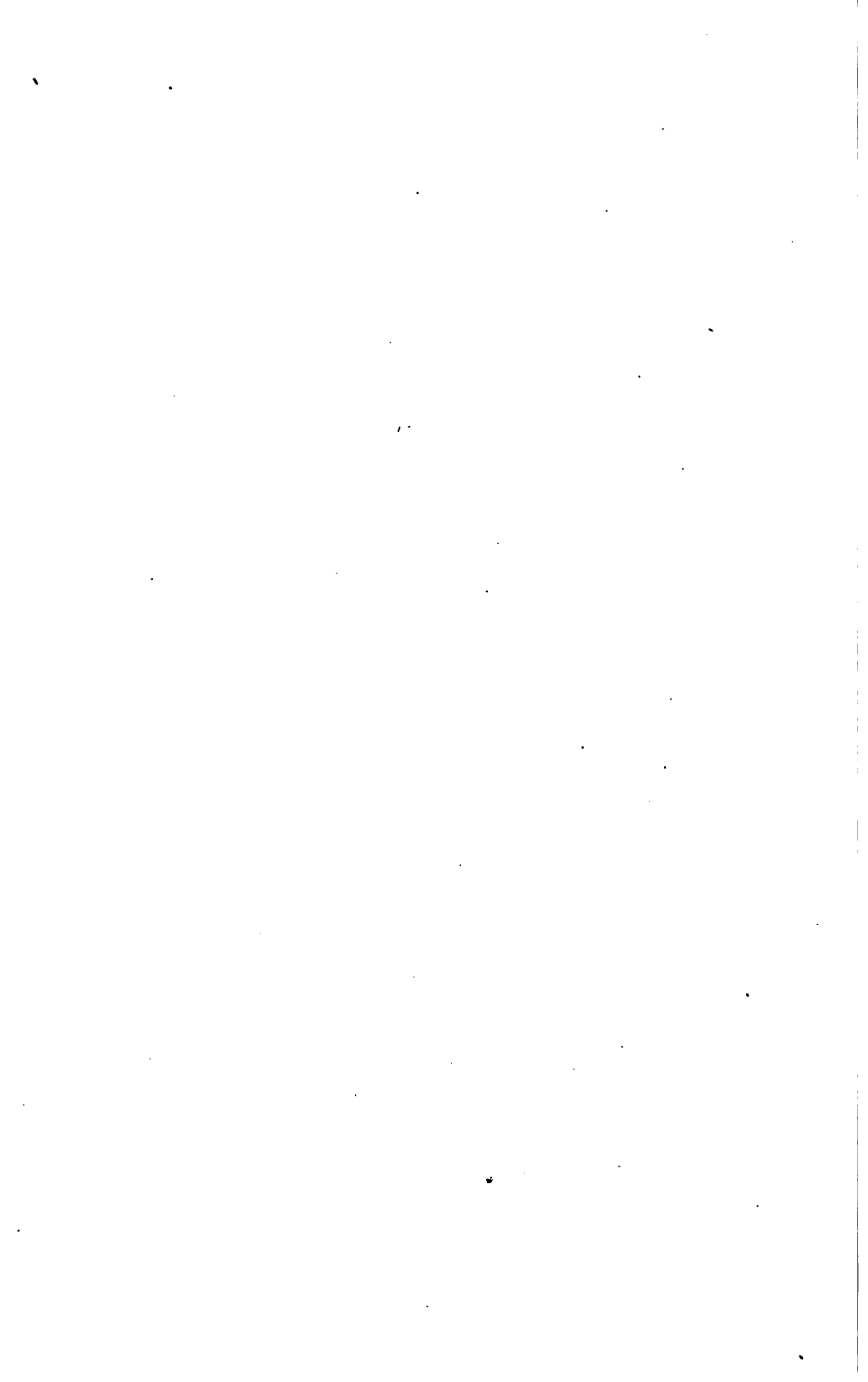
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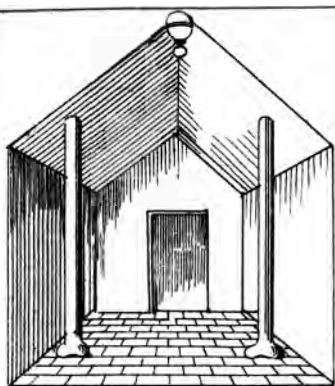
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31.

ΣΤΙΕ
 ΣΟΥΤΑΝΥΑ
 ΕΙΟΗΟΥΟΙΘ
 ΟΥΦΑΙΕΥΣΙ
 ΚΑΙ ΕΥ
 ΛΟΧΟΥΓΥΤΡ



25.



26.



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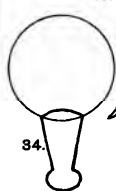
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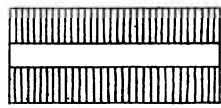
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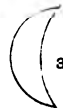
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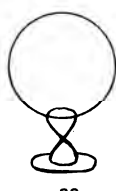
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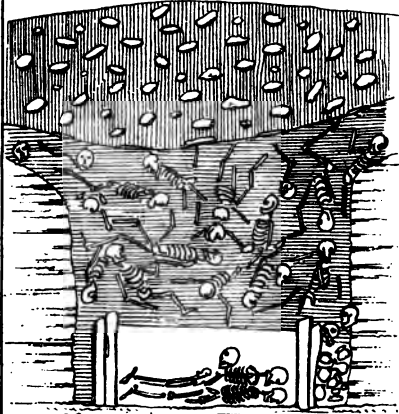
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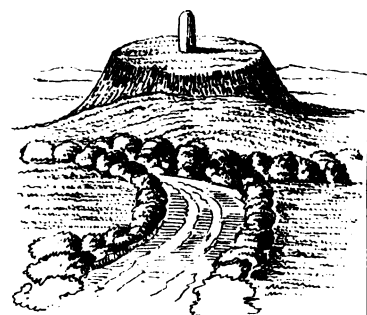
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41.

Fig. 31, is a copy of the Newton stone, from Dr. Moore's *Pillar Stones of Scotland*, and the inscription which it bears is given at length to the right hand side of it.

Figs. 32 and 36, represent combs; they are copied, as are the others to Fig. 39, from Forbes Leslie's *Early Races of Scotland*. The existence of this useful article in Scotland certainly tells us of some civilisation. As an emblem, the comb represents Venus, and a part which is often used as an emblem of the passive element in creation.

Fig. 33, apparently depicts a solar triad.

Figs. 34 and 39, are intended for mirrors, which, like combs, were emblems of the female creator.

Fig. 35, is apparently intended to represent the cobra, one of the few serpents which is able to distend and erect itself.

Fig. 37, a fish, is a well known emblem of Venus—fertility, or parental vigour.

Fig. 38, is the crescent moon, an emblem of Isis, Ishtar, Venus, and woman generally.

Fig. 40, is copied from a remarkably interesting paper by Colonel Meadows Taylor, in the *Transactions of the Royal Irish Academy*. It is a drawing of a cairn, which he caused to be opened in the Dekkan, five miles south-east of Jewurgi. The tomb was in the vicinity of remains whose nature is thought, when they occur in England, to indicate Druidism. The author considers that the style of burial resembles the Scythian method, and quotes Herodotus, b. 4, c. 71.

Fig. 41, is copied from Forbes Leslie's book, and shows a hermes and galgal, gilgal, or cairn of unusual magnitude in Brittany. Of similar shape are the "linga-yonis" of the Hindoo villages, though their size is small, and the material of them is stone.

Figs. 42 and 43, are from Meadows Taylor, and indicate what we may call Druid monuments in India.

Figs. 44 and 45, are from Forbes Leslie's book, and represent stone circles, erected in the Dekkan, not very far from the remains commemorated by Meadows Taylor. These circles, though they resemble ancient Druid ones, are of modern origin; and the name of the god in whose honour they are erected is Betal or Vital. The spots upon each stone are of red paint, which is supposed to represent human blood. It is amusing to see how nations like the Chinese and the Hindoos fancy they can "economise" in their worship, by counterfeiting money and blood; but the spirit of "make-believe" is so strong in us all, that it is injudicious to indulge in laughter at others.

Figs. 46, is copied from R. P. Knight. "The place of worship consists of an area and altar only," inclosures like those of the Persians, with an altar in the centre. "Such a temple is to be seen at Puteoli," which resembles a Celtic temple in Zealand—*i. e.* Fig. 46.

Fig. 47, is copied from a fresco in Pompeii. It is curious, as it represents an offering made to the 'god of the gardens,' the small central figure. On the right is to be seen a hermes of a common form, and on the left a triple hermes, in the form of a cross, which justifies the statement that this emblem is not exclusively a Christian one.

Fig. 48, represents Isis with a cow's head, taking the very unusual form of a pillar.

Fig. 49, represents an altar and a pillar hermes or 'terminus.' The leaf at the top represents that of the quince tree, and it is generally placed by the Pompeian painters in the hands of young brides, or females in Bacchanal scenes, as the fruit of that tree was provocative of desire. Compare Song of Solomon ii. 5. Two branches of oak, emblematic of strength and endurance, are fastened round the pillar; and the priest, in the costume of those consecrated to Bacchus, and having a thyrsus in his hand, pours a libation of wine upon the altar, as a sort of drink offering, resembling that made by Jacob to a pillar, Gen. xxxv. 14.

Fig. 50, is copied from a coin of the elder Philip, struck at Heliopolis, in Coele Syria, which is figured by Lajard; in the centre is represented Ceres and Cornucopia, which sometimes replaced the Virgin and Child, the equivalent of Mylitta, Astarte, or Venus. Two attendant genii, each of whom is standing upon an erect pillar stone,—whose shape denotes its signification,—are doing honour to her. It is to be remembered that when money was first coined, it was marked by sacred emblems, thus affording us an insight into what was the nature of the mysteries, and of the forms under which the Deity was supposed to be recognised. The figure of the Virgin and Child can be traced back to the most remote times of Babylonia and Phœnicia, and was as much respected in ancient Tyre as it is in modern Rome.



42.



43.



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45.



SIXTH ORDINARY MEETING.

ROYAL INSTITUTION, January 7th, 1867.

The REV. C. D. GINSBURG, LL.D., President,
in the Chair.

Previous to this meeting, according to notice, an

EXTRAORDINARY MEETING

was held, to consider a recommendation from the Council, that a Class of Corresponding Members should be instituted.

After considerable discussion, it was resolved that the subject should be referred back to the Council for further consideration.

At the ORDINARY MEETING which followed, Mr. Caleb Smith, Jun., Mr. Donald M. Drysdale, and Mr. Robert Trimble, were balloted for, and duly elected members of the Society.

The following paper was then read :—

AN INQUIRY

INTO THE ORIGIN AND PHILOLOGICAL RELATIONS OF
THE ANTIQUE DIALECT FORMERLY SPOKEN IN THE BARONIES
OF FORTH AND BARGEY, COUNTY WEXFORD, IRELAND.

By J. A. PICTON, F.S.A.

THE history of Dialects forms a very important part of Philological inquiry. The literary standard of every language has usually been subjected to so many influences of an external nature, has drawn so much from foreign sources, for the purpose of giving utterance to new thoughts and providing a constantly increasing vocabulary, that the racy homeliness of the earlier phraseology has been almost entirely extinguished. What is gained in breadth is sometimes lost in power. The earlier forms of speech are clipped and softened and compromised, and though, on the whole, the result is a wonderful gain to the cause of progress and development, difficulties are thrown in the way of etymological inquiries which the study of primitive dialects helps to remove. Most of the dialects of our English speech (*Englisca spræce*) have been amply illustrated, but here and there, in outlying nooks and corners, there may still remain, comparatively undisturbed, archaic forms and a primitive vocabulary, in which there has been little alteration for many ages, serving to illustrate the progress of our language, and bringing us as it were into contact with mediæval times. Such appears to be the case with the dialect now to be considered. It can hardly be said still to exist in actual speech. Within the last generation it has died away, and only survives as a spoken tongue in the memory of a few old people, who have heard it in their childhood. The remains, therefore, are necessarily scanty; but, from the researches I have been able to make, they

appear to me to be fraught with remarkable interest. The existence of a peculiar race of people, limited to the corner of a single county, preserving for ages intact their own manners and customs, speaking a dialect entirely different from that of any other part of the country, is a phenomenon sufficiently striking to merit inquiry, both in its ethnological and philological relations. As is often found to be the case when facts of an abnormal nature come under casual observation, the peculiarities have been sometimes exaggerated.

It has been stated by one observer that the dialect spoken was "pure Anglo-Saxon;" by another, that it precisely corresponded with the language of Gower and Chaucer. A third writer states that the inhabitants are pure Normans, and maintain the manners, customs, and language of their ancestors to the present day. Although neither of these statements will be found exactly correct, yet enough remains to render the analysis of the dialect and the inquiry into its history one of very great interest.

Very little has hitherto been published in illustration of this peculiar speech. The first notice is in a report of Col. Solomon Richards, of Wexford, prepared, it is said, for the information of Sir William Petty, about the year 1682. He says on this subject—

"Bargie and Forthe are the English baronies, but Forthe chiefly retains the name, and justlie. Its idiom of speech is not Irish, nor same as English, as English is now refined; yett it is more easy to be understood by an Englishman that never heard Irish spoken than by any Irishman that lives remote. Itt's notorious itt's the very language brought over by Fitzstephen, and retained by them to this day. Whoever hath read old Chaucer, and is at all acquainted therewith, will better understand the Barony of Forth dialect than either an English or Irishman that never read him, though otherwise a good linguist. Itt was an observation of the inhabitants of this Barony of Forth, before the last rebellion, that they had kept their language, loyalty, and religion all equally pure."

General Vallancey, who, during the latter part of the last

century, was a most industrious writer on Irish antiquities, contributed a paper in the second volume of the *Transactions of the Royal Irish Academy*, 1788, giving an account of these baronies, in which he gives an old song* on a hurling match, with a vocabulary.

In the year 1836, on the occasion of a visit of the Earl of Mulgrave, the Viceroy, to Wexford, an address* in the native dialect was got up and presented to him. By this time the dialect had become so obsolete and disused, that considerable difficulty was experienced in preparing the document.

Dr. Latham, in his *English Language*,† gives a short notice of the dialect, and inserts the "Address."

In 1857, at the meeting of the British Association in Dublin, the Very Rev. Dr. Russell, president of Maynooth College, read a paper on this subject. It is not published in the *Transactions*, but by the kindness of Mr. E. Hore, of Wexford, I have been able to procure a copy. It is decidedly the most interesting document which has hitherto been published on the subject. There are also slight notices in the *Encyclopædia Britannica*, article "Wexford," and in Jennings' *Somersetshire Dialect*.‡

These are all the notices I have been able to find. In none of them, except in Dr. Russell's paper, is there any attempt at analysis or philological inquiry. I have thought it desirable that such an attempt should be made before the dialect is entirely forgotten. With what success I have pursued the inquiry my readers must judge.

A glance at the position of the tract of country under consideration, and a few notices of its history, will explain the influences to which it has been subject. We shall then be in a better condition to analyse the remains of the dialect, and to trace them to their respective sources.

* Both these are given below. † Vol. ii., p. 426, 4th ed.

‡ London, 1825; p. 20.

The county of Wexford occupies the South East corner of Ireland, and the baronies of Forth and Bargey occupy, in like manner, the South-eastern angle of the county. Washed by the sea on the east and south, cut off on the north by Wexford harbour, and nearly separated on the west by small rivers between the river Slaney and Bannow harbour, these two baronies form a district apart, shut out to a great extent from regular intercourse with the other parts of the country. At the same time, its maritime position at the entrance of St. George's Channel, within easy distance from South Wales and the West of England, afforded peculiar facilities for settlers arriving by sea. That these circumstances have been taken advantage of, the history of the country will show.

The original population was doubtless of the Celtic Irish race, as the substratum of the nomenclature shews in such names as Ballytrant, Kilsoran, Killine, Durcomuck, &c. From a very early period the district was subject to the incursions of the Danes, or Northmen, who, after repeatedly plundering the country, finally settled down and took peaceful possession. A large portion of the nomenclature belongs to this period. Wexford—Weis-forth, or fiord, the bright harbour, Bargey, Forth, Scarcross, Tuskar, the Saltees islands, the river Slaney, &c., are names given by the Danes. Next succeeded the Anglo-Normans, who, in 1169, landed under Strongbow and his companions, and took possession. The two baronies were then created; Forth was bestowed upon Rôbert Fitzstephen, and Bargey upon Hugh de Montmorency. Many changes subsequently took place, into which it is not necessary to enter. The dialect itself presents sufficient internal evidence that the population was largely recruited from Devonshire and the Western coasts of England.

After the cessation of predatory maritime attacks, the country appears to have settled into a quiet agricultural condition. Possessed of a fertile soil, and open maritime communication, and separated from the Celtic population by a barren mountainous district, and by a difference of language and habits, the manners, customs, and dialect of the people naturally followed an unbroken tradition from generation to generation, and in the last century must have presented a quaint and interesting specimen of the olden times. Vallancey (writing in 1788) says—

“When we were first acquainted with the colony, a few of both sexes wore the ancient dress; that of the man was a short coat, waistcoat, and trunk breeches, with a round hat and narrow rim; that of the woman was a short jacket, a petticoat bordered at bottom with one, two, or three rows of ribband or tape of a different colour. We have seen one whose jacket was of superfine woollen cloth, of a dark brown colour, edged with a narrow silver lace. The dress of the head was a kircher (kerchief).”

The prevailing family names of the colonists are stated to be Hore, Cod, Stafford, Whitty, Rossiter, Sinnot, Murphy, Stephen, Quiney. These appear to be as various in their derivations as the inhabitants themselves. Cod, Murphy, and Quiney are native Irish in their origin; Sinnot and Stephen are Norman. Whitty and Rossiter are probably of Danish derivation. The latter has been supposed to be a corruption of Wroxeter, an ancient Roman city in Shropshire, but is more probably from the Norse Röst, Röster, intrepid, bold. Stafford is undoubtedly English, and Hore most probably so.

At the time when Vallancey published his account, the dialect had already become to a great extent obsolete. He says—

“As population increased, some of the English” (*i.e.*, the inhabitants of the baronies) “have been obliged to remove into the neighbouring baronies within these fifty years, and, by an intercourse with the Irish,

the language of these emigrants became corrupted; and these, by their connections with their kindred remaining in the baronies of Bargie and Forth, have in some measure introduced this corrupted dialect there. The town of Wexford is the market to which the colony resorted, to dispose of the produce of their farms, and in this market all things are bought and sold in the modern English dialect; this also is another cause of the decline of the language of the colonists, but not one word of Irish is understood or spoken in these two baronies;* still they preserve many words and phrases of their original language, and some original songs, which, having been committed to writing, will exist as long as the people."

I now proceed to give the specimens of the dialect already alluded to. The first is a rude ditty on the vicissitudes of a hurling match. A few words on the subject-matter of the song may not be out of place.

The game of Hurling is of very high antiquity, something very like it having existed amongst the Greeks and Romans, under the name of "Harpastum," which is mentioned by Martial and by Galen.†

In this country it has principally flourished in Cornwall and the West of England. Carew, writing in 1602,‡ thus discourses of it:—

"Hurling taketh his denomination from throwing of the ball, and is of two sorts: in the east parts of Cornwall to goales, and in the west to the country. For hurling to goales there are fifteen, twenty, or thirty players, more or less, chosen out on each side, who strip themselves to their slightest apparell, and then join hands in ranke, one against another. Out of these rankes they match themselves by payres, one embracing another, and so passe away, every of which couple are especially to watch one another during the play. After this they pitch two bushes in the ground, some eight or ten feet asunder, and directly against them, ten or twelve score paces off, other twain in like distance, which they term goales, where some indifferent person throweth up a ball, the which whosoever can catch, and carry through his adversaries' goale, hath wonne the game."

* This must be accepted with some limitations, as we shall find many words in the dialect derived from the Irish.

† See also Becker's *Gallus*, i. p. 276. ‡ *Survey of Cornwall*, book i., p. 73.

The hurling "to the country" was played somewhat differently, over a large extent of country, by one parish against another.

Strutt,* who quotes the above account from Carew, adds—

"About five and twenty years ago [this would be about 1780] the hurling to the goal was frequently played by parties of Irishmen, in the fields at the back of the British Museum, but they used a kind of bat to take up the ball and to strike it from them; this instrument was flat on both sides, and broad and curving at the lower end. I have been greatly amused to see with what facility those who were skilful in the pastime would catch up the ball upon the bat, and often run with it for a considerable time, tossing it occasionally from the bat and recovering it again, till such time as they found a proper opportunity of driving it back amongst their companions, who generally followed, and were ready to receive it. In other respects I do not recollect that the game differed materially from the description above given."

With this explanation, the incidents in the song will not be found very difficult to understand.

The text, as given by Vallancey, is evidently in many parts corrupted. I present it with an interlinear translation into modern English. This differs in many respects from that given by Vallancey. I wish it to be literal, or verbal, and not a mere paraphrase.

A YOLA SONG.

AN OLD SONG.

Scene.—The Commons in the Barony.

Time.—A Church Holiday.

Walter relates to John how his son Tommy, having the fairest chance of winning the game at Hurl or Commáne, lost it by too great eagerness, and broke his bat against an ant hill.

I.

"Fáde teil thee, zo lournagh? co Jone zo knaggee?
What ails thee, so lowering? quoth John, so peevish (knaggy)?

* *Sports and Pastimes*, edit. 1810, p. 91.

Th' weithest all curcagh, wafur, and cornee;
 Thou seemest all wearied, woeful, and fretful;
 Lidge w' ous an 'a milagh, 't is gay and louthee;
 Lie with us on the clover, 't is gay and sheltered
 Huck nigher, y' art scudden,* fartoo so hachee.
 Draw } nigher, you 're writhing, whereto so ill-tempered.
 Hitch }

II.

Well, gosp, ch 'ull be zeid, mot thee fartoo an fade,
 Well, gossip, it shall be said, told thee whereto and what,
 Ha deight ouz var gabble, tell ee zin go t' glade;
 (You) 've prepared us for chat, till the sun goes to (the) valley;
 Ch 'am a stouk an a donel, wou 'll leigh out ee day;
 I am a stock and a fool, we 'll lie out the day;
 Th' valler w' speen here, th' lass i' chourch hey.†
 The more we spend here, the less in the church yard.
 (value)

III.

Yerstey w' had a barree‡ jist ing our hone,
 Yesterday we 'd a goal just in our hand,
 Are gentriz were bibbern, amezill con no stone.
 Their gentry were quaking, themselves could not stand.
 Yith muzlere had ba hole; 't was me Tommeen
 If mislere had (the) bat held; 't was my Tommy
 At by miz-luck was y-pit t' drive in.
 That by mis-luck was put to drive in.

* On this word, Mr. Edmund Hore, of Wexford, to whom I am indebted for much valuable information, remarks, "This is still a very common phrase in low life. It means the act of a person shrugging his shoulders and twisting his body, as if something was itching or irritating his skin, and conveys the idea of discontent within his mind, at something done or to be done."

† The meaning of this is, I suppose, that the church yard, on Sundays and holidays being the great mart for gossip, the time in telling the story now would be so much saved at the Sunday meeting.

‡ This means the goal. It was formed of a stout tough stick, bent into a semi-hoop, with pointed ends driven into the ground, about three feet wide and thirty inches high. There were two of these, one for each party, at opposite ends of the playground, the distance about 100 yards more or less. The party putting the ball through the baree of the adversary won the game.—HORE.

IV.

Joud and moud vrem earchee ete was i' lough;
 Throngs and crowds from each quarter were at (the) lake;
 Zitch vaperren and shimmereen fan ee daff i thar scoth;
 Such vapouring and shimmering when they doffed in their shirts;
 Zitch blackeen and blayeen fan ee ball was y-drowe,
 Such bawling and shouting when the ball was thrown,
 'Chote well ar aim was t' yie ouz ne'er a blow.
 I know well their aim was to give us ne'er a stroke.

V.

Mot w' all ar boust hi soon was y-teight,
 But with all their boast they soon were taught,
 At ar errone was var ameing 'ar 'ngish i' height;
 That their errand was for aiming their anguish (to) its height;
 Zitch vezzen, tarvezzen, till then w' ne'er zey,
 Such thrusting, struggling, till then we ne'er saw,
 Nor zichel ne'er well now nor ne'er may.
 Nor such-like ne'er will now nor ne'er may.

VI.

Many a braw draught by Tommeen was y-mate;
 Many a brave stroke by Tommy was made;
 Th' Cowlee* man fausteen, zey, well, 't was a nate.
 The Cowlee man spattered, says, well 't was a neat (one).
 Yith w' had any luck our name would b' zung,
 If we had any luck our name would be sung,
 Vreem ee Choure here alogh up to Cargun.
 From the Choure† here below up to Cargun. ‡

* *Cowlee*. When the ball was driven beyond on either side or over the *Baree*, it was called a *Cowlee*. The parties then changed positions, and the one that gained the *Cowlee* had the privilege of throwing up the ball, making a powerful stroke, and driving it as far as possible towards the opposite goal, where the struggle to pass through again began.—HORE.

† Choure = sore. Carnsore Point.

‡ Cargun, one of the hills between Wexford and Carlow.

VII.

Th' heiftem o' play vell all ing to lug,
 The weight of (the) play fell all into (the) hollow,
 An there w' had Trebler* and sturdy Cournug.*
 And there we had Trebler and sturdy Cournug.
 Th' commanes t' rapple, the ball skirr an vlee;
 The ball-clubs they rattled, the ball skirred and flew;
 Our een would b' mistern t' dearn 't up i' skee.
 Our eye would be dimmed to turn it up to the sky.

VIII.

Than came ee shullereen, i' t' heap an corkite
 Then came the shouldering, in the heap and struggle
 Hi kinket an kilt i vewe ame t' wode snite.
 They kicked and kilt † the few of them that would hurry up.
 Zim dellen harnoths w' are neze i' reed clay,
 Some delve earth-nuts with their nose in red clay,
 More trolen, and yalpen, and moulten away.
 More rolling, and yelping, and melting away.

IX.

Na, now or nevir, w' cry 't t' Tommeen,
 Nay, now or never, we cried to Tommy,
 Fan Cournug yate a rishp, and Trebler pit w' eem.
 When Cournug gave a rush, and Trebler put with him.
 A clugercheen gother, all ing pile and in heap,
 A crowd gathered, all in (a) pile and in (a) heap,
 Wourlocked anan orree lick lluskes o' sheep.
 Overlocked one on another like droves of sheep.

X.

T' brek † up ee bathes h' had na poustee,
 To hinder the bats they had no power,

* Two well known players. † *Kilt*, more Hibernico, in an Irish sense.

† *Break* is not here used in the sense of "frangere," but with a meaning common in A.-S.—"to vanquish, weaken, overcome." Tommy's antagonists were all lying in a confused heap before him, and he was master of the situation, had he known how to use it.

Tommeen was lous, and so was ee barree;
 Tommy was free, and so was the goal;
 Our heart cam' t' our mouth, an zo w' all i' green,
 Our heart came to our mouth, and so with all in (the) green,
 Th' hap an ee ferde, and ee crie was "Tommeen!"
 They hoped and they feared, and the cry was "Tommy!"

XI.

Up came ee ball, an a dap or a kewe
 Up came the ball, and a tap or a shake
 Would zar; mot all arkagh var ee barnagh blow.
 Would serve; but all eager for the barnagh blow.
 We' vengem too hard, ee zunk ee ^(at the bars) commane,
 With earnestness too hard, he sunk the bat,
 An brough et i' still ing a emothee knaghane.
 And broke it in (the) steil in an emmets' hill.
 (handle)

XII.

Th' ball want a Cowlee,* the gazb mate all rize
 The ball went a Cowlee, the dust made all rise
 (overshot the goal)
 Like a mope in a mele; he gazt in a mire,
 Like a fool in a mill; he gazed in amazement,
 Than stalket an gandelt wi' "Oh!" an gridane,
 Then stalked and rambled, with "Oh!" and (a) cry,
 "Our joys all y-smoort ing a emothee knoghane."
 "Our joys all be-smothered in an emmets' hill."

XIII.

"Ha, oh! be me coshes, th' ast y-pait," co Jone,
 "Ha, oh! by my conscience, thou 'st paid it," quoth John,
 "You 're w' thee crookeen, an ye me thee hone."
 "You 're with thy (self) vexed, and give me thy hand."
 'He na nouth fade to zay; llean vetch ee man;
 One not knows what to say; mischief fetch the man;

* Cowlee—*vide supra*, note p. 18.

† There is some obscurity here. Vallancey reads, "He it nouth," &c., "He that knows what to say," which makes no definite sense.

Twish thee an Tommeen, an ee emothee knoghane.
 "Twixt thee and Tommy, and the emmets' hill.

XIV.

"Come w' ous, gosp Larry, theezil on Melchere,
 "Come with us, gossip Larry, thyself and Melchior,
 Outh o' me hone 'chull no part wi' Wathere."^(Miles)
 Out of my hand I shall not part with Walter."
 Iowan got leigheen, she pleast ame all. Fow?
 Joan got laughing, she pleased them all. How?
 Sh'ya ame zim to doone, as w' be doone now.
 She gave them some to do, as we be doing now. (Drinks.)
 Zo bless all our vreends, an God speed ee plough.
 So bless all our friends, and God speed the plough.

There can be no doubt that this song is genuine, and represents the dialect as actually spoken about the middle of the last century. The actual date of its composition is not known, but I am not disposed to attach to it a very high antiquity. Apart from its dialectic peculiarities, the phraseology is not very archaic. Probably the latter half of the seventeenth century would not be far from the period of its composition.

The address to Lord Mulgrave, the only other existing specimen of the dialect, stands on a different footing from the song. In 1836 the dialect had become almost entirely extinct, and the attempt to get up an address exhibiting its peculiarities was attended with considerable difficulty. It was really prepared by Mr. E. Hore, of Wexford, a gentleman who has devoted great attention to the subject; and it puts together, in a very interesting manner, the fragmentary remains which still survived at the time in the recollection of the country people, who had been accustomed to the dialect in their youth.

BARONY FORTH ADDRESS.

To 's Eccellencie, Constantine Harrie Phipps, y' Earle Mulgrave,
 "Lord Lieutenant-General and General Governor of Ireland,"
 ye soumissive spakeen o' ouz, Dwelleres o' Baronie Forthe,
 Weisforthe.

Mait be pleasant to th' Eccellencie,

Wee, Vassales o' "His Most

We, subjects of "His Most

Gracious Majesty," Wilyame ee Vourthe, an as wee verilie chote na
 Gracious Majesty," William the Fourth, and as we verily believe both
 coshe and loyale dwelleres na Baronie Forthe, crave na dicke luckie
 faithful and loyal inhabitants of the Barony Forth, crave at this happy
 acte t' uck neicher th' Eccellencie, an na plaine garbe o' oure yold
 opportunity to draw near your Excellency, and in the plain garb of our old
 talke, wi' vengem o' core, t' gie oure zense o' ye grades whilke
 speech, with earnestness of heart, to give our sense of the qualities which
 be ee-dighte wi' yer name, an whilke we canna zei, albeit o'
 are put on with your name, and which we cannot say, except (that) of
 (characterise) Governere, Statesman, an alike. Yn ercha an al o' while, yt beeth wi'
 (express) Governor, Statesman, and the like. In each and always, it is with
 gleesom o' core th' oure eyen dwytheth apan ye Vigere o' dicke
 gladness of heart that our eyes rest upon the Vicegerent of that
 (look) Zouveraine, Wilyame ee Vourthe, unnere fose fatherlie zwai oure daiez
 Sovereign, William the Fourth, under whose fatherly sway our days
 be ee-sprant; as, avare ye trad dicke londe, yer name was ee-kent var
 are spent; as, before you trod this land, your name was known for
 ee vriene o' libertie, an he fo brake ye neekares o' zlaves. Mang
 the friend of liberty, and he who broke the fetters of (the) slaves. Among
 ourzels, var we dwytheth on Irelande az oure generale haima, y' ast,
 ourselves, for we look on Ireland as our general home, you have,
 (common country) bie ractzom o' honde, delt t' ouz ye laas ee-mate var ercha vassale,
 by impartiality of hand, dealt to us the laws made for each subject,
 (with) ne'er dwythen na dicke wale na dicka. (ministered) Wee dwyth ye ane fose
 never looking on this party nor that. We regard you one whose

daies be gien var ee gudevare o' ye lond ye zwae, t' avance pace
 days are given for the good fare of the land you sway, to advance peace
 an livertie, an, wi' oute vlynch, ee garde o' generale reights an
 (welfare) (promote)
 and liberty, and, without flinching, the guardian of common rights and
 poplar vartue.
 popular virtue.

Ye pace, yea, wee mai zei, ye vaste pace, whilke bee ee-stent our
 The peace, yea, we may say, the vast peace, which is extended over
 ye londe zince thaate ee cam', prov'th y'at wee needeth alane ye giftes o'
 (profound)
 the land since that you came, proves that we need only the gift of
 generale reights, az be displayte bie ee factes o' thie goveremente. Ye
 common rights, as is displayed by the facts of the government. The
 state na dicke daie o' ye londe, na whilke be nar fash nar moile, albeit
 state at this day of the land, in which is neither trouble nor disorder, but
 "constitutional agitation," ye wake o' hopes ee-blighte stampe na yer
 "constitutional agitation," the result of hopes blighted, stamp on your
 (exhibit)
 zwae be rare an lightsom. Yer name var zetch avanet avare
 sway (to) be rare and enlightened. Your name for such advanced before
 ye, e'en a dicke var bye, arent whilke ye brine o' zea an ye craggess
 you, even to this far place, to which the brine of (the) sea and the crags
 o' noghanes cazed nae balke. Na oure glades ana whilke wee
 of (the) mountains caused no hindrance. In our glades, in which we
 dellt wi' mattocke and zing t' oure caules wi' plou, wee hert
 delved with (the) mattock and sung to our horses (in the) plough, we heard
 (whistled)
 ee zough o' ye colure o' pace na name o' Mulgrave. Wi' Irishmen
 the sough of the dove of peace in (the) name of Mulgrave. With Irishmen
 (distant sound)
 oure general hopes be ee-bond. Az Irishmen an az dwelleres, na
 our general hopes are bound up. As Irishmen and as inhabitants, both
 cosh an loyale, o' Baronie Forthe, wi' oul daie, an ercha daie, oure
 faithful and loyal, of (the) Barony Forth, we all daily, and every day, our
 meines an oure gurles, prai var lang an happie zins, shorne o' lournagh,
 wives and our girls, pray for long and happy suns, deprived of melancholy,
 (days)
 an ee-vilt wi' benisons, an yerzel an oure gude Zovereine, till ee zin
 and filled with blessings, on yourself and our good Sovereign, till the sun
 o' oure daies be var aye be ee-go t' glade.
 of our days be for ever gone to the glade.
 (set)

I have preserved throughout the spelling as it is given in both the documents.

The orthography of the two somewhat differs, as might naturally be expected. In fact, in an inquiry of this kind, the mere difference of spelling, unless it has a phonetic value, must be thrown out of consideration. Reducing to writing a dialect without a literature is subject to the caprices of those who take it down, and the tendency is always to exaggerate rather than extenuate the peculiarities.

Except for the purpose of looking strange and old-fashioned, there can be no object in writing "oure talke" instead of "our talk." In the same way, "Wilyame" for "William," "daiez" for "days," "wee" for "we," "reights" for "rights," "lluck" for "luck," "verilie" for "verily," "leigh" for "lie," "yn" for "in," *cum multis aliis*, are mere surplusage, and present no dialectic differences whatever.

We have next to eliminate a number of words which look outlandish, but which are merely contractions, and which may be found in any dialect. Such are—

Vigere	for viceregent, or viceroy.
Gosp	„ gossip.
Yerstey	„ yesterday.
'at	„ that.
't wode	„ that would.
W' are	„ with their.
W' eem	„ with them.
H' had	„ they had.
Brough	„ broke.
Coshes	„ conscience.
Co'	„ quoth.
I t' heap	„ on a heap.

After making these allowances, there is still left a large remainder, of a very interesting nature. This will probably be best illustrated by tracing the origin of many of its words and expressions, and by pointing out the archaic character of many of its forms.

Tradition and history both point to the colonisation of this district from the West of England in the twelfth and thirteenth centuries. We naturally turn, therefore, to Devon and Somerset, and inquire how far the common speech on both sides of St. George's Channel is analogous. On examination we find in many respects there is a remarkable similarity. Of course it is only in a general sense that the analogy can be traced, as different parts of Somerset and Devon have their own local peculiarities.*

In pronunciation we have in both dialects the substitution of the soft for the hard sibilant—

Zins	for suns.
Zim	„ some.
Zince	„ since.
Zunk	„ sunk.
Zar	„ serve.

The medial employed for the tenuis—

Avare	for before.
Vrom	„ from.
Vor	} „ for.
Var	
Vell	„ fell.
Vlie	„ fly.
Vetch	„ fetch.
Dap	„ tap.
Dearn up	„ turn up.
Dicke	} „ this.
Dicka	

The lengthening of the vowels—

Speen	for spend.
Vreend	„ friend.

* “I think there can be no question that the Irish colonists were from the West of England, and most probably from Somersetshire, but of what part is not so easily determined, perhaps from different parts of the county; and from the apparent admixture of dialects, evident in the vocabulary and the song, this I should suspect to be the case.”—Jennings' *Observations on some of the Dialects of the West of England*. London, 1825.

Many of the contractions are also identical —

Nouth for knoweth not.

W' oul „ we will.

Amezill — Devon, 'emzill — themselves.

Ch 'am for I am.

Ch' ull „ I will.

Ch' ote „ I wot (know).

The 'ch is a contraction of the Anglo-Saxon *ic*, German *ich*, *I*.

Many peculiar words are also common to both dialects—

IRISH.	DEVON.
Louthee,	lewth—shelter.
Bibbern,	bivering—trembling, quivering.
Ete,	eth—earth, used in the sense of homestead.
Blakeen,	blake—to cry till out of breath.
Vezen.	veazen—to thrust, to squeeze.
Tarvizen.	tarvy—to struggle (Cornish).
Fausteen.	foust—dirtied, spattered.
Heiftecn.	heft—weight.
Skirr,	skeer—to skim along.
Mistern. dimmed;	mistree, dim sighted.

There are some peculiarities of pronunciation partially referable to the West of England dialect, but which cannot be entirely identified, such as—

Lass	for less.
Jist	„ just.
Ing	„ in.
Hone	„ hand.
Stone	„ stand.
Errone	„ errand.
Alogh	„ below.
Kink	„ kick.
Nize	„ nose.
Read	„ red.
Rishp	„ rush.
Gother	„ gathered.
Wourlocked	„ overlocked (intertwined).
An-an-oree	„ one on another.

Shullereen	for shouldering.
Emothee	„ emmet—ant.
Emothee-noghane	„ an ant hill.
Harnothas	„ earth-nuts.

Notwithstanding the boast of the inhabitants of the seventeenth century, that “before the last rebellion they had kept their language, loyalty, and religion all equally pure,” there is found a considerable admixture of Irish Gaelic words in the dialect as presented to us. Vallancey says (see above) —

“Within the last fifty years (before 1788), as population increased, some of the English have been obliged to remove into the neighbouring baronies, and, by an intercourse with the Irish, the language of these emigrants became corrupted, and these, by their connections with their kindred remaining in the baronies, have in some measure introduced this corrupted dialect there.”

The following are a few specimens of the Irish introduction : —

ENGLISH.	IRISH.
Coshe, faithful.	Cois-glidh—cois, near; gleidh, to keep.
Dwytheth, beholdeth.) Dwithir, the dawn, the light of the morning.
Dwythen, sight, regard.	
Fash, restraint.	Fasg, band, bond, a prison.
	Fasinghim, to destroy, lay waste.
	Ffasg (Camb.), a bundle, anything tied up.
Moil, disorder.	Moill, delay, hindrance.
Knaghane,) hills.	Cnoc, a hill.
Noghane,)	Cnocan, a little hill.
Wake, consequence, result.	Uachd, testament, will.
Caules, horses.	Capull, horse; no doubt a derivative of Low Latin Caballus.
Curcagh, out of sorts, tired.	Currthae, weary, fatigued.
Millagh, clover, grass.	Millich, grass.
Donel, a simpleton.	Dona, a poor unfortunate fellow.
Commane, a hurling club.	Comán.
Corkit, tumbling, struggling.	Cor, wrestling.

	Crochan, to beat, pound.
	Crogach, pawing, clawing.
Clughercheen, a crowd, a cluster.	{ Clugain, Clugaineach, } a cluster.
Lluskes (of sheep), flocks or droves.	{ Luisgim, to drive.
Bathes, the goal (at hurling).	Bata, a stick, pole.
Arcagh, eager, impetuous.	Ardgha, valiant.
Barnaugh blow.	Barra* is the bar, <i>nach</i> the adjecti- val termination. Barnaugh blow is the blow which strikes the bar or goal.
Gridane, an gridane, at a sudden stroke.	{ Greid, a blow or stroke.
Crookeen, vexed.	Cruachog, jeopardy, distress.
Lean, sorrow, mischief.	Lean.

The Cowlee man or goal keeper has been mentioned above. The term seems derived from Irish *coil*, a corner, a place fenced off.

There are a few words which find their counterparts in the Flemish and Old Frisian. A Flemish colony was early planted in Pembrokeshire, from which quarter many of the Wexford colonists were drawn.

IRISH.	FLEMISH.
Vengem, strength, earnestness.	Veninge, trust, confidence.
Raetzom, impartiality.	Ratisca, judgment, estimation.
Lournagh, melancholy.	Loeren, to lour.
Scoth, shirt.	Old German scato, a covering.
Lug, a hollow, low land.	{ Leeg. Lagh.

For one or two we must have recourse to the Danish. It is a little remarkable that so few should be found :

* The term barra or bars, for the goal of a game, is not peculiar to Ireland. We find it in the ancient literature of England :—

"Went he on a day to play,
As children doe atte bars."

Legend of Pope Gregory.

ENGLISH.

Neekares, fetters.
Bye, a place.

DANISH.

Hneckia, to hinder, impede.
By, as found in the Danish terminations of names of places, as Kirk-by, Form-by, &c.

Danish influence can also be traced in the peculiar form of several common participles and pronouns :

Fose, whose.	Danish, hvis.
Fo, who.	„ hvo.
Whilke, which.	„ hvilke.
Fan, when.	
Fade, what.	

The original settlement having been in part composed of Anglo-Normans, we might reasonably expect to find some remains indicating this connection. There are not many however :

ENGLISH.

Core, heart.
Benisons, blessings.
Meinies, wives and families.
Hachee, ill-tempered.
Poustee, power.

NORMAN FRENCH.

Cœur.
Benison.
Mesnie, a family.
Hache, tired, fatigued.
Poste.

“ Yea, sir, but Richesse hath *poste*.”

CHAUCER, *Romaunt of the Roses*, 6484.

“ Thou hast been warned ofte,
With *poustees* of pestilences.”

PIERS PLOUGHMAN, *Vision*, 7455.

Lous, praise, praised.

“ Among a basket full of roses,
This favor did he to hir *loses*.”

CHAUCER, *House of Fame*, 8—598.

Kew, to shake

Quav; Eng. quaver.

“ The wal wagged and cleef,
And al the world *quaved*.”

PIERS PLOUGHMAN, *Vision*, 12195.

Mire, wonder, amazement.

Mirer.

Avanet, arrived.

Avenir.

The most interesting part of the inquiry yet remains. ter making every allowance for mere corruptions and false

spelling, for derivations from West Saxon, Irish, Danish, Flemish, and Anglo-Norman, there are many archaic forms and expressions, which carry us back to a very early period in the history of our language, and which are well worthy of observation.

The syllabic augment to the past tenses and participles, once common to all the Teutonic tongues, but now confined to the German, is here to be found. "A draught was *ee-made*" is equivalent to the German *gemacht*, or to the Anglo-Saxon *ge-macod*. In English it softened down to the prefix *y*, in which form it is commonly found in Chaucer and other writers of the fourteenth century, after which it disappears, except in a few words, such as *y-clept*, &c. A little of it still survives in the West of England dialect, in such phrases as—"I've a-heard tell." "What he'd a-lost." "When are you a-comin?" In the Wexford dialect it seems to occupy its original position, *e. g.*, *ee* or *y-dight*, *y-paid*, *y-stent*, *y-taught*.

Several strong preterites have been here preserved, not found in use at the present day, such as—

Daff, strong preterite of doff.

Hap, do. of hope.

Many obsolete expressions and forms present themselves—

Gude-vare, for welfare.

Colure, dove-pigeon; Anglo-Saxon *culver*.

Balk (substantive), in the sense of hindrance.

Sprant, passed away; Anglo-Saxon *sprengan*.

Stent, spread abroad; Anglo-Saxon *stihtan*, to arrange, dispose.

Dight (dight ouz), prepared ourselves; Anglo-Saxon *dihhtan*.

Gleesom, joy—the adjective used for the substantive.

Grades, qualities; Anglo-Saxon *grad*. Compare South Lancashire *gradely*, properly.

Yola, old; Anglo-Saxon *yldo*; Old Frisian *ield*.

Hi, Anglo-Saxon form for they.

Lidge, lie; Anglo-Saxon *ligan*.

Troll, for roll; Anglo-Saxon *thyrlian*.

Gandel, to ramble; German *wandeln*.

Yie for give	} yife, late Saxon.
Yate „ gave	
Yith „ if	

“Wel ought a preest ensample for to *yeeve*.”

CHAUCER, *Prologue*, 507.

Blayeen, bellowing, crying out.

“Tell her in your piteous *blaying*,
Her poor slaves' unjust decaying.”

Brit. Bibl., 1—104.

Joud an Moud, crowds and throngs; Anglo-Norman *jouste*, *joûte*,
a tournament; Anglo-Saxon *môt*, a popular assembly.

Mot is also used as a verb, to discuss, tell. It may be connected
with Anglo-Saxon *môt*, or with French *mot*.

Mot, in the sense of “but,” is probably the imperative of Anglo-
Saxon *môt*—*mótan*, must.

Snite, to hasten, run up.

In the *Cod. Exon.*, “*snythian*” is used in the same sense.

Mope, a fool.

“Nor shalt thou not thereof be reckoned the more *moope* and *foole*, but the
more wise.”—VIVES, *Instruction of a Christian Man*.

Mislere, stupidity; from Anglo-Saxon *mis*, prefix of defect, and
lár, lore, learning.

Louthee, sheltered.

“He fond this holy Urban, anon,
Among the seintes buriels *louting*.”

i.e., lying in a sheltered place.

CHAUCER, *Second Nonne's Tale*.

Zin go t' glade. Rather a poetical expression for the setting sun.

Ye, ee, for “the.”

Y' at „ that; y' ast, you have.

Ee „ they.

Arent, to, motion to. Comp. Anglo-Saxon *arend*, a message.

Valler, value, used in the sense of extent, space.

Gazb, dust—“th' gazb mate all rize.”

This is a word of doubtful origin. The nearest approxi-
mation I can find is in the Old Frisian and Low Saxon *gast*
or *geest*, high dry land, in contradistinction to marsh land.

It cannot be supposed that the meagre remains of the
dialect which have survived, contain the whole, or nearly so,

of the dialectic peculiarities, but enough is left to indicate the nature of the dialect, and to point out, in a general way, the sources from whence it has been derived.

If we carefully analyse any of our provincial dialects, we shall find that by far the greater portion of the abnormal characteristics are owing to bad spelling,—in many cases unnecessary,—to difference of pronunciation, to contractions and corruptions of common words, and to bad grammar. If we eliminate these portions, the residue, the only really interesting part, consisting of archaic and obsolete words and forms, and words derived from other languages, will be found very small. This, indeed, must be the case, or a provincial dialect would, in the course of time, become a distinct and separate language. The use of a written and literary standard, in any country, exercises a powerful influence over its dialects, and prevents them departing from it beyond a certain point. However diverse from each other the High and Low German, the Scandinavian, and the English languages may now be, there was a time when, to a great extent, they were mutually intelligible, each tongue being merely a dialect of the general speech.

This is shewn, in regard to two of them at least, in a very interesting manner by a Low Dutch ballad, said to be of the twelfth century, which appeared in a review in the *Times* of Sept. 10th, 1866, with an English translation, or rather paraphrase, and was copied into *Notes and Queries* of Oct. 20th. The date is a little earlier than the Biblical paraphrase of Ormin, commonly called the Ormulum, one of the most valuable links of connexion between Anglo-Saxon and Modern English. Every word in the ballad is common both to Dutch and English, and the syntax is the same in both. The spelling of the words differs, which is a matter of small consequence, and many words have fallen out of use in Modern English. I give the old Nieder-Deutsch version,

with the English equivalents verbatim, in parallel lines, marking in italics those words which have fallen out of use, but which are nevertheless sound English of the olden time. In some words which are not obsolete, I have preserved the final extra syllable, and in others the final *e*, to accommodate the rhythm.

I.

Naer Oostland willen wy ryden,
 Nigh* Eastland willen we ride-n,
 Naer Oostland willen wy mée; †
 Nigh Eastland willen we *mid*;
 Al over die groene heiden,
 All over the greene heath-e,
 Frisch over die heiden,
 Fresh over the heath-e,
 Daer iss er en betere stée. ‡
 There is *ane* better-e *sted-e*.

II.

Als wy binnen 't Oostland komen,
 As we *binnon* || th' Eastland come-n,
 Al onder dat hooge huis fyn;
 All under that high house fine;
 Daer worden wy binnen gelaten,
 There *wurdon* § we *binnon gelatan*, ¶
 Frisch over die heiden,
 Fresh over the heath-e,
 Zy** heeten ons willekom zyn.
 They *haten* †† us welcome *syn*. ‡‡

* The Anglo-Saxon *neah*, High German *nach*, *nahe*, Low German *naar*, all signified motion towards a place, as well as propinquity.

† *Mée*, contraction for *mede*, equivalent to High German *mit*, Anglo-Saxon *mid*—together, with.

‡ *Stée*, contraction for *stede*, a place.

|| Anglo-Saxon *binnon*, within; Scottish *ben* the house.

§ Anglo-Saxon *wurdon* = wuld-on, would.

¶ Anglo-Saxon *ge-latan*, to let be, remain.

** Anglo-Saxon *hi*. †† Anglo-Saxon *haten*, to call, ask.

‡‡ Anglo-Saxon *syn*, to be.

III.

Ja, willekom, moeten wy wezen,
 Yea, welcome, might-en we *wesen*,*
 Zeer willekom, moeten we zin;
Sair † welcome might-en we *sýn*
 Daer zullen wy, avond en morgen,
 There shall-en we even and morning,

Frisch over die heiden,
 Fresh over the heath-e,
 Noch drinken den koelen wyn.
Nu ‡ drink-en the cool-en wine.

IV.

Wy drinken den wyn er met schalen,
 We drinken the wine there *mid scealum*, §
 En 't bier ook zoo veel ons belieft;
 And th' beer eke so *fela* § us *leve*; ¶
 Daer is het zo vrolyck to leven,
 'There is it so *freolio* ** to live-n,
 Frisch over die heiden,
 Fresh over the heath-e,
 Daer woanter myn zoete lief.
 There *woneth* †† my sweet-e love.

Parallelisms of this kind might be pursued much further between the Anglo-Saxon and Old German, and between both of these and the Gothic.

The consolidation of tribes into nations, and the growth of written documents, led to the selection of one dialect in each country as the standard for its literature. Why the particular speech adopted in each language should have been so selected, it would be difficult in many cases to say. The

* Anglo-Saxon *wesen*, to be. † Anglo-Saxon *sár*, very, greatly.

‡ Anglo-Saxon *nu*; High German *noch*, still, yet.

§ Anglo-Saxon *scealu*, cups.

§ Anglo-Saxon *fela*, much.

¶ Anglo-Saxon *leven*, to please, desire. ** Anglo-Saxon *freo-lic*, free-like (*freolic*).

†† Anglo-Saxon *wunnan*, *wonnan*, to dwell.

reasons for the adoption of the Middle and South Saxon in England as the standard, were doubtless owing to the superior cultivation in that part of the country; but the preference in France of the *Langue d' Oil* to the *Langue d' Oc*, which was graced by much of the early literature of the Middle ages, is not so easy to account for. The adoption of the High Saxon in Germany, and the Tuscan in Italy, as the literary dialects, may be traced to historical circumstances. It must, in all cases, be an interesting study to examine and compare the provincial dialects which have lagged behind the progress of literary speech, and which assist in throwing light on the changes which have been, and still are, proceeding in every language which is the living utterance of mankind.*

* This has been done with great success by M. Cesare Cantù, in his *Storia degli Italiani*, in which the chapter on the language of Italy, from the earliest to the latest period, is full of the deepest philological interest.

SEVENTH ORDINARY MEETING.

ROYAL INSTITUTION, January 21st, 1867.

The REV. C. D. GINSBURG, LL.D., President,
in the Chair.

Mr. Thomas Gibson, Jun., was balloted for, and duly elected a member of the society.

Mr. MOORE exhibited a collection of marine specimens, obtained by Captain Thompson, ship "Vanda," Associate of the Society, between Liverpool and Bombay, among which was a beautiful worm of the genus *Chlocia*. He also exhibited a series of specimens of lava from Vesuvius, collected by the Rev. J. L. Darby, of Newburgh, Ormskirk; and a mounted skeleton of the Virginian eagle, *Bubo Virginianus*, beautifully displaying the ring of bony plates surrounding the eye, which ring is more largely developed in owls than in any other birds.

The following paper was then read:—

ON THE LITERATURE OF EXPEDITIONS TO THE NILE.

By ALBERT J. MOTT, Esq.

A large French Map of Africa, dated 1671, discloses in a curious way the state of Geographical science two centuries ago.¹ The kingdom of Abyssinia is found about fifteen hundred miles from its proper frontier, the province of Gojam being placed in the very centre of South Africa, about the latitude of Angola and Mozambique. South of Gojam are two enormous lakes, out of which the Nile is made to flow in two branches, meeting at 3° north of the equator, while at the southern end of one of these lakes are placed the Mountains of the Moon. The map itself, besides being full of cities and rivers, is covered with mountains, scattered over all waste places and unknown territories. The draughtsmen of that age seem to have thought that the objection to a vacuum should be recognised even in maps, and that wherever nature was not known to have put anything else on the dry land, she ought at least to have put a hill. On the same principle, perhaps, the paper oceans of those days are full of fishes as big as Madagascar, with mouths like the Black Sea. Another map of the same continent, printed at Venice about a century earlier, is substantially the same.² Maps, indeed, represented not so much the knowledge as the conjectures of that period; and the first effect of modern

¹ *Carte de l'Afrique, &c.*, Paris 1671. British Museum. See the Dutch Maps of the period.

² *Il disegno della Geografia*, Venetia, 1564. British Museum. See Munster's *Cosmography*.

scientific inquiry in geography, as in most other matters, was to sweep away into the region of the unknown three-fourths of what our forefathers took for granted.

In Arrowsmith's large map, of so late a date as 1832, the whole of the central parts of Africa are nearly blank paper, except a narrow belt across the continent from Senegambia to the Red Sea. A little south of this a continuous chain of mountains, stretching from Sierra Leone to the Strait of Bab-el-Mandeb, is made to divide Africa in two. The lakes have vanished; indeed they disappeared a century before. Abyssinia is pretty correctly laid down, but the Blue river is still called the Nile, and the sources of the White stream are placed at about 8° north latitude.

The last quarter of a century has been a period of reconstruction, and the beautiful map just published by Mr. Stanford gives a summary of the results. The central mountain chain has followed the other phantoms, and there are still enormous blanks; but what is laid down now is for the most part authentic, and, since the time of Columbus, there has been no greater era of discovery.

The most exciting thing in any map of Africa has always been the river Nile. Its history is a long romance. It nourished almost the earliest civilisation; it flows by the oldest buildings in the world. The great kings of Egypt had sailed upon it, and their mummies had been ferried across it before Moses was born. It drew to its banks the first Israelites, the first Christians, the first Mahommedans. The lower half of it remains to this day in the hands of one of the most singular nations on the face of the earth; and what we call our Eastern question must one day be settled on its shores. Its upper half flows through a world of wonders, stretching into regions even now unknown; and the search for its actual sources has been a kind of knight-errantry for more than two thousand years. That search has called forth

a number of expeditions, and these, especially of late, have produced a literature of their own—a literature sufficiently interesting, and now sufficiently extensive, to be worth reviewing as a whole. What I can offer you myself is only a short notice of some portions of it, written chiefly in our own language, or in French.

The first recorded journey of discovery to the Nile is that of Herodotus. How much he saw himself is not very clear. He did not go beyond the Island of Philœ, in north latitude 24°. Of the source of the Nile he knew only the story told him about the spring between the two rocks, Crophî and Mophî. In his eyes the full flood of the river was its natural volume, and it was the shrinking, not the swelling, of its waters that had to be accounted for. He explains it accordingly, and in an amusing way. The sun attracts at all times a certain quantity of water, and he must get it somewhere. In summer, when he is nearly vertical over Lower Egypt, he has the many great rivers of Europe and Asia within his reach, and he therefore takes but little from the Nile. In winter, driven back to Libya by the storms, he has nothing but the Nile to get the water from, and he drinks it nearly dry.³

We begin therefore in the mists of legend, and fables of all kinds have been associated with the great river down to the present day. There is an old map in which a broad equatorial ocean runs right through the middle of Africa, making its southern half an immense island. The Nile rises in this island, and runs to Egypt under the sea.⁴ Its sources have been found in melting glaciers, in fathomless springs, in subterranean lakes, and in the waves of the Atlantic. It has passed through the lands of the pigmies, the satyrs, and the unicorn; it has been supposed to fertilise a wide-

³ *Euterpe*, cap. 25.

⁴ Vincent's *Periplus*.

spread region, instead of a long and narrow valley; and its Mountains, of the Moon, after wandering like the mirage itself through all the principal deserts of Africa, are still without a settled place in modern geography. Even the volume of its waters is at this moment seen in our best authorities under an enormous magnifying power. A note in Rawlinson's *Herodotus* tells us that the Nile at full flood pours into the Mediterranean, through its two principal branches, no less than seven hundred thousand millions of cubic mètres a day.⁵ The same quantity is given in the last edition of the *Encyclopædia Britannica*.⁶ Fullarton's *Gazetteer*, adopting the same data, reckons that the Nile would fill the lake of Geneva in fourteen hours; but adds, with some degree of caution, that there is reason to doubt the accuracy of the calculations.⁷ The reckoning is not doubtful, but a huge impossibility. A river ten miles wide and ten yards deep could discharge this quantity only by running at the rate of above a hundred miles an hour; and a rainfall of one inch a day over the whole continent of Africa would not suffice to keep up this prodigious outflow. The fable has sprung out of an oversight in reading French notation. In England, almost invariably, commas in a line of figures mark off periods, spaces denote differences in value, and decimals are indicated by a point. The French use commas and spaces indifferently for all three purposes, and hardly ever use the decimal point. The authority for the volume of the Nile is Clot Bey's "*Aperçu général sur l'Égypte*," Paris, 1840.⁸ Clot Bey gives the result of M. Linant's careful measurements, and he gives the exact figures quoted by Rawlinson. But only the first nine of them, divided by spaces into periods, are mètres; the last three

⁵ Vol. ii. p. 7.

⁷ Art. NILE.

⁶ Art. EGYPT and NILE.

⁸ Tome. i., pp. 40, 41.

figures, cut off by a comma, are decimals.* The effect of the oversight is of course to multiply M. Linant's result by a thousand, and so give us the volume of a thousand Niles instead of one. This is not a bad example of one of the sources of mythology; and it is so much easier to set a fable on its legs than to knock it down again, that the story of the Nile filling the lake of Geneva in fourteen hours will be told, I dare say, to our children's children. I believe Professor Chaix, or his printer, was the originator of this particular story. He made the calculation, in a short paper in vol. xix of the *Geographical Society's Journal*. His figures as printed are not intelligible; they make him misread his own decimal notation. He makes 8,000 to be 4,600 times as much as 1,700, and then appears to divide the error by 10; for the volume attributed to the Nile would really fill the lake in an hour and a half, instead of fourteen hours.

The Crophî and Mophî of Herodotus are generally laughed at, but as our latest travellers bring us the names of Koshi and Chopi, as two mountain regions on either side of the Albert Nyanza, it seems possible that the old historian may have heard real echoes of the truth from the priest of Sais.

Attempts at farther exploration were made by various monarchs before the Christian era, but the next expedition of much importance is that of Nero's two centurions. They were sent expressly to find the sources of the Nile, and reached apparently the marshy regions of the White river; according to the short account given by Seneca. He supposes the water to come from an under-ground lake; says it was reported to have been salt formerly; and examines the current theories about the annual overflow. The opinion, which he calls that

* The figures are—

	Cubic Mètres.
English authorities	705,514,667,440
Clot Bey	705 514 667,440

of all antiquity, that melting snows on Ethiopian mountains supplied the current; the fable which brought it from the ocean; and the fancy, something like that of Herodotus, that the water was reduced in summer by absorption in the dry earth, are severally rejected. He leaves the question open, saying, wisely enough, that if we could find out where the Nile begins to swell, we should learn the cause of the inundation.¹⁰

The centurions, or those with them, brought back more information than Seneca preserved, or other travellers did so in the next century, for Claudius Ptolemy knew more than this about the Nile geography. We may readily suppose that, during the height of Imperial splendour at Rome, the demand for elephants and for ivory would lead to intercourse with the districts where they are most abundant now, and where they must always have been so, for wild animals must follow their food. Ptolemy knew at all events that the Nile came from a region of lakes and mountains south of the equator. Whether we know more than he did, may still be an open question. His eastern lake perhaps waits to be discovered, and his Mountains of the Moon are likely to settle down not far from the position he assigned to them.

From the days of Ptolemy, no further knowledge of these districts was gained for more than a thousand years; they were impenetrable even to Moslem fanaticism, though the Mahommedans over-ran many parts of Africa, and obtained an imperfect knowledge of the rest; such as was detailed by Al Edrisi in the twelfth century.¹¹ About the year 1800, Marco Polo gave descriptions of Africa from information gathered in his Asiatic travels.¹² Soon after, Ibn Batuta thought he had found the Nile near Timbuctoo; but his river was the Niger.¹³ Very early in the sixteenth century, Portuguese ships sailed up

¹⁰ *Quæst. Nat.* lib. 6.

¹² Vincent, vol. i., p. 203.

¹¹ Vincent's *Periplus*, vol. i., p. 83.

¹³ Lee's translation.

the Red Sea, and Covilham and others were sent on embassies to Abyssinia. They were furnished with maps, prepared in Portugal, partly no doubt of Moorish origin, and they sent back additional intelligence.¹⁴ Our early maps of Africa, before the time of D'Anville (reign of George I.), were compiled chiefly from these materials; but the information beyond the coast-line was extremely inaccurate, and was distorted by a fundamental error. The distinction between the Blue and White Niles was not understood. Actual knowledge was confined to the first; report and tradition referred often to the second; and the attempt to reconcile these with each other, with Ptolemy's statements, and with fables about the vast extent of the Abyssinian empire, led to those singular geographical paradoxes already noticed.¹⁵

At the end of the sixteenth century the Portuguese Jesuits began their missionary efforts in Abyssinia. Peter Paez (who died in 1622), Alphonso Mendez, and Jerome Lobo, who arrived there a year or two afterwards, gave accounts of their travels, which were made known chiefly through the writings of Kircher, Tellez, and the Abbé Le Grand. Paez was said to have discovered the source of the Blue Nile in 1618. He was able at all events to describe it pretty correctly, and Lobo did the same.

These missionaries, however, had no instruments for determining latitudes and longitudes. Bruce and others have dealt with them as if their chief interest must have been a geographical one; but they went to deal with heresies, not to lay down maps; and their notions about Gehenna, and the road into it and out of it, were much more definite than any they entertained about the tropics of the upper world.

The enormities of the maps were corrected by D'Anville,

¹⁴ Vincent, vol. i., p. 196; and Michaud, *Biograph. Universelle*.

¹⁵ See also map in Munster's *Cosmography*, 1550.

early in the eighteenth century,¹⁶ when the position of Lake Dembea and of the province of Gojam became pretty accurately known, the boundaries of Abyssinia were moved some ten degrees eastward and some twenty degrees northward, and a certain ignorance began to be confessed as to the political and geographical divisions of the vast interior.

English literature on the subject may be said to begin in 1734, when Dr. Johnson, then twenty-five years old, published his first work. The book was a translation of Jerome Lobo's account of Abyssinia and the sources of the Blue Nile, from the French version published in 1728 by Le Grand. It was printed at Birmingham and issued anonymously, and it appears to have attracted little attention at the time. But fifty-five years afterwards, in 1789, soon after Johnson's death, this work was republished; and it then became the cause of a violent controversy.

Bruce, whose travels in Abyssinia were undertaken in the years 1768 to 1773, was preparing his five quarto volumes for the press.¹⁷ He had claimed to be the discoverer of the source of the Nile, but had published no account of his journeys. The validity of this claim, and even the fact of his having ever reached Abyssinia, were doubted; Johnson himself had said satirically that when he first conversed with Mr. Bruce, the Abyssinian traveller, he was very much inclined to believe that he had been there; but that he had afterwards altered his opinion. After that, there could be no good feeling between Bruce and Johnson, and the appearance of Lobo's narrative, recommended by the name of the now famous Doctor, just as the traveller was about to publish his own account, must have been galling in the extreme. For if Lobo is to be believed, the sources of the Blue Nile had been discovered by the Jesuits, one hundred and fifty years

¹⁶ See maps in Rollin, Harris, &c.

¹⁷ *Gentleman's Magazine*, vol. lxx., p. 548.

before Bruce visited them; and there is really no reason to doubt it. Bruce's work came out in the following year, 1790; he attacked Jerome Lobo and all his brethren with extreme bitterness, and retorted on them the accusations of falsehood made against himself. He pointed to various inaccuracies in their descriptions, as proofs that they had never seen what they described, but he did not show by what other means they could have obtained their general information. The source of the Blue river at the foot of a mountain, its eastward course for a short distance, its sudden bend northward, its relation to lake Dembea, and the names of some of its first affluents, were correctly given by the Jesuits, and maps of tolerable accuracy were drawn long before that of Bruce.¹⁸ The cause of the annual inundation, which is chiefly due to the violent summer rains on the Abyssinian mountains, poured suddenly down the Athara and the Blue Nile, was also explained by the missionaries; so correctly, that it is surprising there should have been any doubt about it afterwards.

In this too Bruce was anticipated. He traversed, however, a great part of Abyssinia, and returned by Sennaar and Upper Egypt. "In which dreadful circle," he says, "was contained all that is terrible to the feelings, prejudicial to the health, or fatal to the life of man."

Bruce was a better writer than most of those who have followed up his discoveries, and his courage and spirit as a traveller were equal to theirs. He carried instruments, including a three-foot quadrant, and made observations of great value and accuracy. He added nothing to our knowledge of the White Nile; in fact, he knew nothing about it, and its course as marked on his map is a complete mistake from the beginning. Better information concerning it was obtained a few years afterwards by Browne and Major Rennell. Bruce's

¹⁸ See Harris's Map of Africa, 1748.

work, notwithstanding its many excellencies, is bulky and wordy, full of egotism and personal vanity; faults only too conspicuous in the writings of his successors. Looking down on the source of the Bahr el Azrek, he exclaims, "I enjoyed here for the first time the triumph which already, by the protection of Providence and my own intrepidity, I had gained over all that were powerful, all that were learned, since the remotest antiquity."¹⁹

That is the key-note of his story, as it has been of many others. An intense ambition carried the traveller through appalling difficulties; but it is not a noble passion, for its chief object is the personal triumph of having made the discovery. Men of this kind never do justice to others in the same field. Bruce has been charged with wilful falsehood in relation to the Portuguese. Dr. Beke has shown that he altered his own map in order to discredit their accounts. The spirit in which he writes about them is most objectionable, but it is not worth while to revive the dispute. More accurate knowledge has confirmed Bruce's observations in the main, and has corrected his errors.

It has been thought strange that he should continue to call the Blue river alone the Nile, while he says himself that the Bahr el Abiad is the larger stream; but this was an old and characteristic feature in the Nile problem. It originated, no doubt, in the fact that the annual overflow was the great object of interest in Egypt. To trace the Nile, therefore, was to trace the inundation, and as the flood came chiefly down the Atbara and the Blue river, each of these, and finally the second, came to be regarded as the Nile. Ptolemy was either better informed, or else his map also was an attempt to reconcile accounts brought from both the Blue and White Niles, without sufficient data to distinguish between them.

For thirty years after the appearance of Bruce's work,

¹⁹ Vol. iii., p. 490.

war and its consequences engrossed the attention of the world, and the battle of the Nile became more interesting than any search after its sources.

But in 1828 a French traveller, M. F. Cailliaud, arrived at 10° north lat., somewhere in the meridian of Egypt, and in 1827 M. Linant ascended the White Nile for some distance above Khartoum. Rüppell, Hay, and others followed, and more or less authentic accounts began to be received concerning the moon-worshipping Dinkas, the tall and handsome Shilluks, the copper-coloured Noers, the vegetarian Keks, and other tribes of the White Nile. These accounts are to be found in the *Bulletin de la Société de Géographie*, of Paris, and in the *Journals of the Royal Geographical Society*.

Then the Pasha of Egypt, the famous Mohammed Ali, organised the three expeditions which, ill managed and comparatively unsuccessful in themselves, gave, nevertheless, a completely new aspect to Nilotic geography, and fairly started us in the course of recent discovery.

If Egypt had been in European hands, short work would have been made with the Nile problem. No leaf of the laurel would have been left for Sir Samuel Baker; and Dr. Livingstone would not now have been seeking the river which may settle the level of Lake Tanganyika.* But the Pasha could not change the nature of his countrymen. "Is there any other name for Turks? No! Turks! Basta!" exclaims Werne, in one of his fits of despair.

The first expedition passed the mouths of the Sobat and Gazelle rivers, made a mistake of 8° in its latitude, and returned.

The second expedition reached Gondokoro, where it was actually only one hundred and fifty miles from the Albert Nyanza, with the river itself showing the way, and one of

* Written before the report of Dr. Livingstone's death had reached England.

the party anxious to go on. But it went back without venturing further. It was accompanied by two French engineers, Arnaud and Sabatier, ill chosen adventurers in the service of the Pasha, and by Ferdinand Werne, a German, brother to the physician of one of the Egyptian governors.

Selim, captain of the first expedition, sent an account of it to the Geographical Society of Paris.²⁰ It illustrates the hopeful nature of Turkish proceedings. After calling the old Pasha the *chef-d'œuvre* of creation, the cream of creatures, the essence of all that exists, he proceeds as follows with his diary :—

“Sunday, at five o'clock, arrived the Sheik Elias Achmet, and we told him he must go with us. In reply, he said he did not know the language of the Shilluks, but that one of his relations in Daryèh, named Hidhoun, knowing the language of the Shilluks, would be better fitted to accompany the expedition. Having agreed to this, we sent some one to find Hidhoun. Next day, Monday, our messenger came back, saying he had not found him. Then we sent the Sheik with two soldiers to fetch Hidhoun. On Tuesday, the 19th, when they returned with the latter, it was the ninth hour. The day being far advanced, we passed the night in the same place.” This was when it was of great importance that no time should be lost ; but a Turk has always got his Hidhoun to fetch and to wait for. Selim says he fired on the natives beyond the Sobat because he heard they had prepared poisoned food for him. He fired again on another occasion, and, having killed several, he carried off some of the women ; sending them back indeed with presents afterwards, but preparing the way doubtless for future difficulties.

Very meagre accounts of the second expedition were published in the same French Transactions, communicated

²⁰ *Bulletin*, vol. xviii., second series.

chiefly in letters from Arnaud to M. Jomard. Arnaud was wrecked at the fourth cataract in returning, and lost all but his journals—at least he said so, making this a reason for his delay in sending fuller information.²¹ But he was charged with complete incompetence, falsehood, idleness, and other vices by his companion Werne, who wrote a long account of the journey, a translation of which was published in England in 1849.

This was one of the worst books of modern travels ever written, and at the same time one of the most important. Nothing but the interest of the subject could drag the reader through its six or seven hundred exasperating pages, in which everything that should be omitted is so mixed with everything that should be told, that a process of mental winnowing of the most aggravating kind has to be kept up perpetually as you read. Leaves upon leaves are mere log books of capital letters; dates, distances, and position have to be hunted up out of a mass of trivial remarks, important observations, ill digested thoughts, and abuse of his companions; probably well deserved. At the same time the interest was paramount. It was to English readers the first generally accessible account of an unknown world, and it was the account of an eye-witness. Those silent marshes of the great African river, where the slow stream brings its floating islands of grass and flowers from the lakes beyond; where the banks are forests of green rushes, or feathery mimosas, and the ambak tree shoots up above the water to open its blossoms in the air; where the hippopotamus and the giraffe, and whatever are largest and most grotesque in the animal world, have their natural dwelling; and where human nature is found in an appalling infancy,—a childhood without innocence as without knowledge,—those regions of burning

²¹ The restraints imposed upon their servants by Turkish governors must be taken into account. I believe Arnaud is still in the Egyptian service.

desert and tropical luxuriance had at last been visited and described, and English imagination has never ceased to dwell upon them with eagerness since Mr. Werne's book appeared.

The Pasha's third expedition had no particular results, nor I believe any published record, beyond some slight notices in the French and other periodicals.²²

These voyages attracted the attention of Brun-Rollet, a Savoyard, who, being young and poor, and finding nothing open to him in the civilised world without money, had resolved, he says, to go where the vile metal was unknown, and seek his fortune among savages. He was trading in Abyssinia when he heard of Arnaud's discoveries. He went to Khartoum, built a boat, and sailed as an ivory merchant up the White Nile. He succeeded in largely increasing the commerce of the district, gained much valuable knowledge, and published an account of his travels, *Le Nil Blanc et le Soudan*, in 1855. He tells some travellers' stories; one for instance, of a tribe, whose married women, when their beauty fades, educate from among their poorest relations young girls to take their places, and require nothing themselves but "*des égards et du respect*." But he seems to have dealt wisely with the natives, and removed many obstacles to friendly intercourse. He established a station at Beligna, near Gondokoro, and explored the Gazelle river for a considerable distance, believing it to be the main stream of the Nile.

Other Europeans followed Brun-Rollet in his mercantile adventures; among them Andrea de Bono, a Maltese merchant, who in 1860 was accompanied by Dr. Alfred Peney, formerly secretary to Clot Bey. A memoir of the life and early death of Dr. Peney, by Malte-Brun, in the *Paris Bulletin*, 1863, is one of the most interesting episodes in the history of Nile discovery. He was

²² See the last note.

a French physician, engaged early in the Egyptian service. He had spent fourteen years in the Soudan before joining De Bono, was thoroughly acclimatised, and carried a pure life of active usefulness into the wild districts round Gondokoro. He travelled east and west of that place, relieving poverty and disease, and died in this occupation, almost suddenly, in July, 1861. His body was carried to Khartoum, and buried there. "His name," says De Bono, "will perhaps remain unknown to the world, because he never had recourse to imposture;" a satire too often merited by travellers in unknown lands.

In the mean time, three German missionaries, Krapf, Rebmann, and Erhardt, settled at Mombas, a little north of Zanzibar, and began to travel among the tribes in the interior. Accounts of their missionary labours, published in 1849, contained the statement, that not far from the equator, and within two or three degrees of the coast, they had seen mountains covered with snow. These excellent men were not very good observers; their reckonings were not exact, their rough maps were palpably wrong, and their statement was received at first with a good deal of incredulity. They were right, however. The great mountain Kilimanjaro has been ascended by the unfortunate Baron Von der Decken and Mr. Thornton, to within a short distance of its eternal snows, and its height is estimated at nearly twenty-three thousand feet, or about that of the Andes.²⁸ The account of this snowy range greatly affected the views of geographers concerning the Nile, and increased the interest excited by Mr. Werne's book. The rest of the work of discovery has been done by Englishmen, and its great results are recorded in the works of Beke, Burton, Speke, Grant, Petherick, and Baker.

Dr. Beke is the veteran of this company of pioneers. His

²⁸ *Journal R. G. S.*, vol. xxxv. p. 21.

own African travels have been chiefly in Abyssinia, but his writings deal with the whole problem of the Nile, and have brought science and sound judgment in aid of its elucidation. In his essay on the Nile and its tributaries, 1847, he came to the important conclusion that the principal chain of African mountains, which he identified with Ptolemy's Mountains of the Moon, would not be found running east and west, but north and south, along the line of the Red Sea and Indian Ocean; that the Abyssinian mountains were in fact continued southward beyond the equator; and that the sources of the Nile should be looked for at their feet.

The general correctness of this view was soon confirmed by Krapf's discovery, and the maps of Africa have been completely altered by it. Dr. Beke also pointed out the comparative ease with which the Nile basin could be reached by starting from the Zanzibar coast, instead of the Mediterranean. His advice was followed, and the splendid discoveries of Burton, Speke, and Grant have been the result. I may add of Baker also; for, although he took the longer route, his journey was suggested by those of his predecessors. Dr. Beke's volume on the Sources of the Nile, 1860, gives the best existing summary of what had been done and fancied on the subject up to that date. It contains among other things a sketch of the Ptolemaic map; sectional drawings of Abyssinia; the results of observation on the levels of the Nile basin, by Russegger and others; and the equivalents of the word Moon in a number of African languages: a matter of very curious interest in connection with the history of the continent.

On the 26th of June, 1857, Captains Burton and Speke began their expedition from the Zanzibar coast; Government having provided part of the funds, and the Royal Geographical Society directing the arrangements. The first object was

to proceed due west, at about 6° south latitude, in search of lakes said to be on that parallel in the interior.

They discovered lake Tanganyika on the 13th February, 1858, about 600 miles from the coast. In July, on their return, Captain Speke first saw the Victoria Nyanza, and on the 4th March, 1859, they were again at Zanzibar. The account of this great expedition, written by Captain Burton, fills the twenty-ninth volume of the *Geographical Society's Journal*, and was published separately in a more popular form. Captain Burton is an experienced traveller, a good linguist, and a careful observer. His account of eastern Africa gives far more solid and varied information than the works of Speke and others, who have often only repeated what he had observed before. But he is on the whole a heavy and fatiguing writer, who instructs much more than he pleases. There is an elephantine tread in his sentences, and he is fond of, or, in one of his favourite phrases, he "affects" all such words as 'ignore,' 'eschew,' 'anastomose,' 'impressionise,' 'sucedaneum,' and 'ever' for 'always;' words good enough in their places, but distressing when they are characteristic of a style. I think the manner of his writing, is the chief reason why he has less than his share of fame with the public generally. We owe the discovery of all the great lakes to his expedition, and in fact it is still possible that when he struck upon lake Tanganyika, he was looking at the most distant reservoir of the Nile.

The first grand difficulty in the way of African travels is expressed by a few items in Burton's outfit. The object was to convey two Englishmen five or six hundred miles and back. To do this about fifty porters and half as many donkeys were required, and their chief business was to carry the money. This, moreover, was an insufficient supply. In Europe we put a year's income into our waistcoat pocket, and never think of money and luggage except as totally

different things. Not long ago, however, a journey through France could not be undertaken without a heavy bag of five franc silver pieces, and this, though hardly an impediment, was a real trouble and inconvenience. But if we only had to carry our funds in copper, so that a thousand francs might weigh perhaps half a ton, there would be an end at once to our summer wanderings, and the whole character of our foreign intercourse would be changed. The difference between rude barter and European finance is soon comprehended when we go among naked savages, who have no acquisitive passions except the love of food and the love of finery, and who reckon in cows and necklaces instead of pounds and pence. And having got your asses and your porters fairly on the road, the first are pretty sure to die, and the second to run away and leave you, which is the next grand difficulty. Neither horses, camels, asses, mules, nor oxen appear suitable as beasts of burden in equatorial Africa; and the elephant, who finds his native home there, has not been domesticated by the natives. Probably the greatest practical help at present, both to civilisation and discovery, in those parts, would be the establishment of an elephant hunt, not for slaughter but for capture, and the training of these great beasts somewhere on the Zanzibar coast. If they could be made available as means of transport, the advance would be as great as from turnpike roads to railways.

The hostility of the natives is often great, but the traveller's dependence on them for food in exchange for his bulky money is the most serious difficulty of all.

The climate is trying, but its dangers are doubled by the fatigue of walking and the impossibility of carrying a sufficient quantity of things necessary to health. It seems certain that fifty riflemen might march where they pleased, and overturn a kingdom a week, if they could go on the backs of elephants, with proper supplies.

Burton and Speke pushed on through all obstacles, exploring the country between 5° and 7° south latitude, and as far as 30° east; crossed the range of mountains which culminates further north in the snowy peaks; found themselves on a high table-land, highest about midway between Zanzibar and Lake Tanganyika, and generally between three and four thousand feet above the sea, and descended its gradual slope westward till they reached the shores of the lake. They arrived there, ill, and with an almost blinding affection of the eyes, but in great excitement; for there was a report of a large river running northward out of the northern end of the lake, and they were filled with the idea that this must be the Nile itself. A strange fatality, such as to some extent followed both Speke and Baker afterwards, compelled them after all to leave this question in doubt. They got within twenty miles of this river, and there, from the exhaustion of supplies and the opposition of the natives, they found it impossible to go a step further. Their hopes in the meantime had been dashed down by positive statements that the river ran into the lake instead of out of it. Nothing seems more difficult than to understand what an African means when he tells you how a river runs.

Captain Burton's disappointment must have been great. It was made still greater by the discovery of the Victoria Nyanza by Captain Speke alone, who on the return journey struck northwards, and came first upon this inland sea. He saw only the southern end of it at that time, but in his own mind he at once determined it to be the source of the Nile. An unfortunate rivalry, the painful nature of which is manifest in Captain Burton's volumes, was the result. Burton was more generous than Speke, for he did something like justice to his colleague's achievements; but the quarrel between them is one of the least agreeable parts of the whole story, and the manner in which it was brought to a close at

last, by Captain Speke's sudden and melancholy death, only adds to the regret with which it must be regarded.

To determine the levels of the country they passed through was of course one of the objects of the expedition, and a great deal was done towards it. I cannot help noticing, however, what I must call the mistake of travellers and geographers generally, in giving the results of first measurements of height as if they were known to a foot, when they are only known really within one or two hundred yards; for this is the case with all heights far from the sea, till they have been corrected by observations, not easily made. The thing determined on the spot by the best barometer or boiling-point thermometer is merely the atmospheric pressure of the moment at the point of observation, and this determines only that the height lies between a certain maximum and minimum, having a range of many hundred feet, unless the sea level or some point, the elevation of which is positively known, should be close at hand. If it were the custom to say, not that such a place was found to be one thousand two hundred and thirty-four feet above the sea, but that the atmospheric pressure was so and so, indicating a height of about so much, it would prevent many errors, and give a much more correct idea of the state of our knowledge. Even the use of round numbers only would be some improvement.

The levels in Eastern Africa are of immense importance in suggesting what is worth attempting by future explorers, but the only thing certain about those marked on our newest maps, Mr. Stanford's, for example, is that they are necessarily wrong, and may be very largely so. Burton made Lake Tanganyika about one thousand eight hundred and forty feet above the sea. It may be much less, or much greater. Speke's first observation gave the Victoria Lake an elevation of three thousand seven hundred feet. On his second journey he found this several hundred feet too much, but Baker

again made the first measurement too little. On the Nile itself, there is almost equal uncertainty. Even the height of Khartoum is unsettled, and Gondokoro has been made as much as two thousand and as little as one thousand two hundred and fifty feet above the sea. Mr. Petherick's last measurement is one thousand four hundred and twenty eight feet. Sir Samuel Baker makes the Albert Lake two thousand seven hundred and twenty feet, which is very likely an enormous error. As the case stands, it is just possible that lake Tanganyika may discharge itself into the Albert Nyanza, though to do this according to the maps would be to run three hundred yards up hill. On the other hand its waters may flow southward, or it may be a lake without an outlet, like the Caspian Sea. Its size and shape are also in part conjectural, the southern half, though laid down in the maps, not having been so much as seen. There seems no doubt, however, that it must be three hundred miles long, and thirty or forty broad on an average, covering some ten thousand square miles.

Burton gives an elaborate account of the country he passed through; of its inhabitants, its products, and its climate. There is hardly any point of interest on which his book does not contain more or less information, generally of a satisfactory kind. Among incidental matters he speaks of villages built on piles by the banks of the Rufigi river, the object of the natives being to provide against sudden inundations, and to keep clear of the crocodiles. The subject of lake dwellings may have fresh light thrown upon it by further inquiry here. These people are utterly barbaric, but they are in the iron period, and have been so for an unknown length of time. Ore, of a sort easily smelted, is found on the surface. They dig little furnaces in the ground, worked with hand-bellows of the rudest kind, with charcoal for fuel, and they forge the metal with stone hammers on stone anvils.

After the death of Speke, Captain Burton published a small volume called the *Nile Basin*, containing a paper by himself and another by Mr. McQueen. In the latter a curious error, made once before about the discharge of rivers, is repeated.²⁴ The volume discharged is said to be as the square of the velocity, which is equivalent to saying that twice one cubic yard a minute is four cubic yards. The arithmetic of most geographical writers cannot safely be taken for granted.

Burton's great expedition was followed in 1860-63 by the still more famous journey of Captains Speke and Grant, the records of which are given in Speke's thick book, and the more modest volume of his companion.

There is a difficulty in speaking fairly of what Captain Speke has written, without seeming to disparage what he has done. He was one of the bravest, most enterprising, and most successful of English travellers. He had a real geographical instinct, and an unbounded energy. His first discovery and subsequent exploration of the Victoria Lake are masterly examples of foresight and decision. He grasped his own plans as he did his rifle, with a clear eye and a steady hand, and his contributions to geographical knowledge were of a very high order. But his account of his journey is certainly not the kind of book one would like to have as the lasting record of so great a discovery. It is moderately well written, but in a sporting tone, that lowers it at once into the ranks of inferior literature, with an extreme egotism, a want of generosity, a narrow ambition, and a common-place level of sentiment that disappoint our natural desire for the worthy treatment of a great theme.

An Englishman who goes where none but savages have been before him, and gives his countrymen the first account of a new world, lies under a grave responsibility. To the

²⁴ Page 154.

savages themselves he is the first revealer of what civilisation and Christianity may be. He stamps a new idea on their memories. He ought to feel that its good or evil influence, through he knows not how many future generations, depends upon himself. The honour of his country and his faith are utterly at his mercy, and what he appears to these wild races is what they will suppose an Englishman to be. To his readers here, his travels and not himself are the proper objects of interest, and the beginning of an intercourse with new nations, especially with horribly degraded ones, is a matter of serious concern. A successful explorer should think of the feelings of those who are less fortunate, and should remember that the worst title to human fame is the effort to claim it.

There are passages in Captain Speke's book which it is impossible to read without feeling that all these considerations must at times have been forgotten. His account of his residence in Uganda is not consistent with the state of moral feeling we wish to find; his behaviour to Captain Grant, though Grant would not blame him, does not satisfy the reader. Baker managed to take his wife forward when she was equally helpless. His treatment of Petherick is most unjustifiable. Charges made in England against a man who must answer from Gondokoro should be substantiated when they are made. His assumption of a contempt for trade among the natives was not only great folly but extremely bad policy. It is nonsense to carry the airs of Hyde Park among a set of savages, who only know two ways of living, one by work and the other by theft, and who infinitely prefer the latter; who have not yet learned to dress and be decent; who will sell you a wife for ten cows, rob you if they dare, murder you if they can, and perhaps as soon eat you as bury you. If any good is to be done with them, it will be done, depend upon it, by traders; and the very first effort

should be to give them as high a notion of honourable commerce as their poor wits are able to receive.

Captain Speke's extreme ambition to be acknowledged as the discoverer of the source of the Nile shows itself in every part of the book. His jealousy of any interference with his fame seemed to extend even to natural objects. To shut out any possible rivalry between Lake Tanganyika and his Nyanza, he put round the northern end of the former a crescent of mountains which he no doubt thought must be there, but which are not considered authentic, and have been removed from the maps. But the most amusing instance was his jealousy of the Great Albert Lake, since discovered by Sir Samuel Baker.

When Speke found his Nile, known now as the Somerset river, flowing out of the Victoria Nyanza, he heard reports which satisfied him that there was another piece of water to the north-west, through which his river must pass before it became the Bahr-el-Abiad. The Luta Nzige, or Dead Locust, was the name given by the natives to this unknown lake, and it seems to have filled Speke's mind with uneasiness from the first. He calls it the "Little" Luta Nzige, and does so invariably, on all occasions, never omitting the diminutive prefix, and never giving any reason for it. He always speaks of this lake carelessly, as of a mere backwater to his river, but you feel that he is haunted by it, and worried by it, and trying always to lessen its importance. He felt no doubt that it put his own exclusive fame in jeopardy; that it might prove, as it has proved, a rival to his Nyanza. He marked the position of this lake, and of the influx and efflux of the river, with great accuracy, but he made it comparatively insignificant in size. His treatment of the matter illustrates in an almost equal degree the keenness of his geographical instinct and the narrowness of his ambition.

Captain Grant's account of the journey is written in a different spirit. As a narrative it is rather tame, and in general it goes of course over the ground Speke's book had occupied before. It shows an affection for Speke himself which is very pleasant to see, and it supplies many interesting details. There are two passages of considerable value in relation to the hydrography of the district.

The Victoria lake stretches northward about two hundred miles, from 3° south to the equator.

Its northern shore has been traced for above a hundred miles, from 32° to near 34° east. Captain Speke believed it to extend another hundred miles eastward, where he places another reported lake, of no great size, connected by a strait with the Victoria, but itself the source of the Asua river, which joins the White Nile south of Gondokoro. He thus gives the Victoria lake an extension of about two hundred miles each way, but he narrows it at the eastern end, making the whole area about twenty thousand square miles. More than half of it, however, is only known by report.

Now, according to Speke's account, the lake rises and falls considerably at different seasons. A rise of four feet would account for the phenomena noticed, and as this is also Baker's estimate of a similar rise and fall in the Albert lake, we may suppose it to be probable. The question then occurs, Where does the water come from, and where does it go to? As to the supply, Grant made observations, through an entire year, of the rainfall in the neighbourhood, and he found the annual total to be forty-nine inches. It fell in frequent showers almost all the year round; but the heavy falls were near the equinoxes, when about fifteen inches fell in two months, twice a year. The swelling of the lake could arise only from this equinoctial fall of fifteen inches, and if the water rose four feet it would require the whole rainfall on about three times the area of the lake to supply the quantity.

But nothing like the whole rainfall could ever reach the lake. At our own waterworks we impound about three-fourths of the rainfall in their immediate neighbourhood. This is in a cool climate, where the ground is seldom parched, the sun rarely scorching, the vegetation scanty, and the area of drainage close at hand. The supply of the Victoria Nyanza comes from a country exposed almost every day to torrid sunshine between the storms, where sandstone is abundant, vegetation most luxuriant, much of the area one hundred miles or more from the lake, with the water coming generally through rush drains as they are called, where the streams are broad and shallow, and very slow. It is not easy to believe that half the rainfall could reach the lake under these circumstances; and if we suppose it half, the area needed for the supply will be six times that of the lake itself, or one hundred and twenty thousand square miles. Nor is this all, for in the meantime there is the Somerset river to feed, and the evaporation from the lake itself to allow for.

Now, the annual evaporation from surfaces of water in our own neighbourhood has been found generally to range between twenty and thirty inches.²⁵ It is sometimes an inch a week in summer. In Lower Egypt, M. Linant says it has been ascertained by careful observation, to average about thirty-four inches a year.²⁶

It seems inevitable that it should be still greater from the surface of the Victoria, where the sun is vertical twice a year, and where the barometric pressure is reduced three or four inches by the elevation above the sea. The evaporation from the Red Sea has been reckoned at about seven feet per annum. We have, therefore, still further to increase the drainage area to at least one hundred and fifty thousand square miles; and a glance at Speke's map will show that

²⁵ Mr. Watson's tables.

²⁶ *Memoire sur le lac Moeris*, Alexandrie, 1843, p. 15.

nothing like this is available upon it. The lake receives nothing from the north, the drainage there being the other way. Excluding the northern shore, its coast line may be about five hundred miles according to Speke; to get an area of one hundred and fifty thousand square miles, therefore, the drainage must extend about three hundred miles back from the coast line; to the west, however, it can rarely exceed one hundred miles in breadth; to the south-west, hardly fifty miles; on the south side it is probably not one hundred and fifty; and on the east, two hundred miles brings us to the snowy mountains.

But in fact we shall have to take the rate of evaporation at something very much greater when, having got the water into the lake, we consider how to get it out again.

The flood of one equinox must subside during the four months between it and the next wet season, and it can only run down the Somerset river or rise up into the air. In one of the passages alluded to above, Captain Grant gives us data for calculating the volume of the Somerset; he describes one part of it, at flood time, as two hundred yards wide, with a current of only half a mile an hour, and shallower than at another part where it was eighteen feet deep in the middle, and nine near the sides.²⁷ We may take four yards as an average depth. Such a river, flowing out of a lake of twenty thousand square miles area, would only reduce its level about two inches in four months; nearly the whole of the four foot increase, therefore, must pass off in vapour, or about a foot in a month; but with such an evaporation going on, the supply required to raise the waters would be half as much again.

I make these calculations, not with any idea that they represent the facts of the case (which they certainly cannot do), but to show what large improbabilities are involved in

²⁷ P. 302.

the present mapping of the district, and what a field there is for further discovery. The Victoria lake may prove to be nothing like so large as is supposed; its rise and fall may be exaggerated, or it may draw supplies from a greater distance than we know of at present.

The second passage referred to²⁸ in Grant's book relates to the size of the Kitangulé river, which enters the lake about the middle of its western side, comes from a mountainous district where there are peaks estimated at ten thousand feet high, and brings to the lake by far the largest body of water met with by the travellers. This river, as well as the little Luta Nzige, rather troubled Captain Speke, and he persuaded himself that it was much smaller than his Nile. Grant, however, makes its volume six times as great. He says he found it eighty yards wide, ten yards deep, and with a current of three miles an hour.²⁹ It would require for its supply the rainfall of a larger district than Speke's map allows; and its volume would be more than three times Mr. Petherick's estimate of the White Nile below Gondokoro.

In 1864 Captain Speke published a second volume,—*What led to the Discovery of the Source of the Nile*,—but as it shows the worst side of his character, and is full of bitterness towards Captain Burton, one can only wish it had not been written.

I am here led to Sir Samuel Baker's well-known work, which most of us have read so lately. His discovery of the Albert Nyanza confirmed Captain Speke's observations, but greatly modified their results. The Somerset river flows into this lake near its northern end, and the White Nile

²⁸ P. 194.

²⁹ Estimates of the volume of rivers, however, require many precautions. Near their mouths, there may be a rapid current at the surface, but almost still water below.

flows out of it at about twenty miles from the mouth of the Somerset; and the size of the two rivers at these points is probably not very different; but the supply brought by the Somerset accounts in a very trifling degree for the flood of waters gathered together in the Albert lake, to which, indeed, it appears to be less important as a feeder than the Kitangulé river is to the Victoria Nyanza. The area of the Albert Nyanza is perhaps as great as that of the Victoria; it also rises and falls several feet, according to Baker's observations; and a vast drainage, and perhaps many rivers larger than that of Speke, must supply its depths. The possibility that Lake Tanganyika may be connected with it is now one of the exciting points in the inquiry, for it would carry the Nile sources five hundred miles further south and change the name of their discoverer.

Baker's experience on the Albert lake was almost exactly that of Burton and Speke on Lake Tanganyika. Like them he and his wife reached the shore in extreme ill-health, saw only the northern part of the lake, and found it impossible to get to either end. He gives a striking account of his great discovery. He reached the edge of a line of cliffs on a brilliant morning, and found the lake at his feet, five hundred yards below. It would be something like standing on the top of Penmanmawr and looking down. Opposite, fifty or sixty miles off across the water, blue mountains rose seven thousand feet above the horizon, where no shore line was visible. To the left, southward, it was boundless sea.

"It is impossible," he writes, "to describe the triumph of that moment. Here was the reward for all our labour; for the years of tenacity with which we had toiled through Africa. England had won the sources of the Nile!"

That was a feeling worthy of the occasion, and it is not marred by what follows.

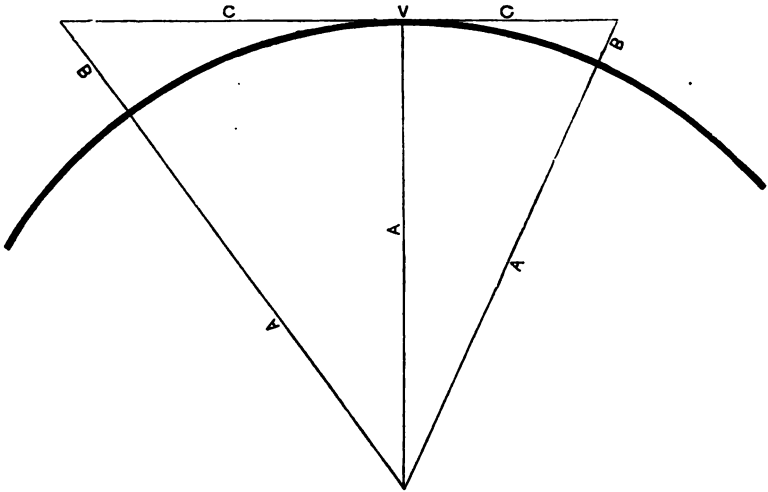
The absence of undue self-assertion, and the general desire to be just to others, especially to Captain Speke, are among the most agreeable characteristics of Baker's volumes. He insists a little too much, however, on the discovery of the actual sources. He has discovered the final reservoir out of which the White Nile flows, but the supply of the reservoir itself has yet to be determined, and it is not very likely that either the Victoria or Albert lake will ultimately appear on our maps as the remotest waters of the Egyptian river.

Baker descended the cliffs to a fishing village called Vacovia, a curious name, suggesting inquiry about its origin. The width of the lake at this point seems a little doubtful. Baker, looking from the top of the cliff, could not see the base of the mountains, but supposed it to be only just below the horizon. If so, seen from a height of five hundred yards, they would be fifty or sixty miles off. From some position, near the shore apparently, he says he saw with a telescope two white torrents coming down the mountain sides. If these were visible from the shore they must have been some two thousand feet above the base of the mountains, and torrents at that height, large enough to be seen even with a telescope at that distance, must be something remarkable. But the details here are rather confusing, for Baker says afterwards that the mountains could not always be seen from the surface of the lake. If they were down to the horizon here, while seven thousand feet of their height was visible from the top of the cliffs, their distance would have been at least one hundred miles, instead of fifty. Baker, however, might still be right as to the width of the lake; the highest parts of the blue mountains might belong to ranges far beyond it, which would disappear behind nearer and lower heights as he descended the cliffs.

The rule for reckoning the distance from which an object

of a given height can be seen on the earth's spherical surface does not seem to be very well known to general observers, and to have it repeated therefore may help to keep some of us out of Professor de Morgan's *Budget of Paradoxes*. A curious mistake about it appeared not long since, even in the *Geographical Society's Journal*, where a well-known writer on the subject of African travels reckons, that if a mountain five thousand feet high can be seen at a distance of eighty-four miles, which is nearly right, a mountain of twenty thousand feet can be seen at three hundred and sixteen miles, which is immensely wrong.⁸⁰ The rule is this,—the diameter of the earth multiplied by the height of the object, plus the square of that height, is equal to the square of the greatest distance at which the top of the object could be seen from the sea level, supposing there were no atmosphere. Practically, the square of the height has no value, and atmospheric refraction adds about ten per cent. to the distance. Multiply the earth's diameter by the height of the object, therefore; extract the square root of the product, add one-tenth to it for refraction, and you have the extreme distance at which the top of the object will be visible from the sea-level. Inversely, the square of any distance, divided by the earth's diameter, gives the smallest height that at that distance could be seen. As we never look really from the sea-level, the calculation must be made from the spectator's horizon, and not from his actual place; the real distance of his horizon being ascertained by the same process. A man six feet high, standing at the edge of the tide, will have his horizon about three miles distant, because an object six feet high can be just seen at that distance, from the surface of the sea. At a height of twenty-four feet the horizon will be about six miles off; at one hundred feet, about twelve miles. The heights visible are as the squares of the distances; the distances as the square roots of the heights, nearly.

⁸⁰ *Journal Royal Geographical Society*, 1860, p. 134.



Let A be the earth's radius; B the height of the object; C its distance from the spectator's horizon, V . These make right-angled triangles, in which $A + B$ is the hypotenuse, and A and C are the other two sides. The square of $A + B$ therefore is equal to the sum of the squares of A and C ; that is, $A^2 + 2AB + B^2 = A^2 + C^2$. Striking out A^2 from each side of the equation, and omitting B^2 as too small to be of consequence, we have $2AB = C^2$; or twice the radius, which is the diameter of the earth, multiplied by the height, equals the square of the distance, C .

The method is chiefly available when looking across water or level plains, and great accuracy is not attainable, the aerial refraction being a variable quantity; but it is useful to a traveller to have the formula in his mind.

As a narrative, Baker's work is, I think, the best that has appeared on the subject. He tells his story in a plain, manly fashion, and its incidents are of the greatest interest in themselves. His account of the extreme misery to which he and Lady Baker were at one time reduced, and of their

feelings under it, is singularly affecting, and is very life-like; nowhere more so, perhaps, than in his confessed longing for an English beef-steak and pale ale before he died. He starts from Gondokoro with high praise of donkeys as beasts of burden in those difficult lands, especially for the advantage they possess in having tails at one end and long ears at the other. In crossing deep ravines and rocky gullies you can let them down by the tails and pull them up by the ears, while a camel, left necessarily to itself, may be rolling like an avalanche, and either breaking its long neck or knocking its pack to pieces. But he found, as others have done, that neither donkeys nor camels could stand the journey.

As I am speaking of the literature of the subject and as Sir Samuel can well afford to be criticised, I shall add, that his book, in spite of many passages of good writing, contains some excellent bad English, of several amusing kinds. Here are a few examples :—

He tells us in his Introduction that America has become a new era in the history of the human race; which is news at all events to American grammarians; and in the same page we read of regions hitherto lain hidden, perhaps for the benefit of English ones. Certain countries are to be “the pulses of civilisation.” “No portion of the Nile is so great as ——” one of its portions.

“They did not see the Nile again until they arrived in north latitude 3° 32', which was then flowing from the W.S.W.” This surely was the latitude of latitudes.³¹

“Richarn was a fair sportsman, and being *an entirely different race* to the Arabs, he kept himself,” &c.³²

“Believing that the fault must *lay* in the boy, I told him I would inquire.”³³

“If any complaint were made, and Saat was called as a witness, such was Saat's proudest moment.”³⁴

³¹ Vol. i., p. 102.

³² Page 117.

³³ Page 119.

³⁴ Page 121.

"A string of fifty little berrets *which* I had brought into the country for the first time, and *were* accordingly extremely valuable."³⁵ But Sir Samuel is not the first man who has succumbed to "whiches."

"Their hair," he says of some pretty savages, "was worn short, like all the women of the country."³⁶ But the women were five feet seven.

These are from the first volume. Here is a sentence from the second,—

"There is only one variety of Rhinoceros that I have met with in the portions of Africa that I have visited; this is the two-horned, a very exact sketch of which I made of the head of one that I cut off after I had shot it."³⁷

In another passage he describes Lady Baker as³⁸ "dressing her hair in the door-way, which, being very long and blonde," excited the wonder of the natives; as well it might.

A great discoverer is not bound to be particular, but a good book, after all, is worth a little rubbing up.

Mr. Petherick, in the mean time, has explored a considerable district west of the Nile, between Gondokoro and the Albert lake. His volume, *Egypt, the Soudan, and Central Africa*, published in 1861, gives an account of fifteen years' experience in African travel; and his map in the *Geographical Society's Journal*, 1865, shows the extent of his discoveries. His measurements of heights, from Khartoum to Gondokoro, are probably the most accurate hitherto made. If so, they point to large errors in the estimates of Speke and Baker. In addition, Mr. Petherick has measured the volumes of water discharged by the White Nile, the Gazelle, and the Sobat; with the very important result of finding the volume of the Sobat as great as that coming from the Albert lake. Now the Sobat has been very much neglected. It joins

³⁵ Vol. i., page 214.

³⁶ Page 216.

³⁷ Vol. ii., p. 275.

³⁸ Vol. ii., p. 46.

the White Nile in north latitude 9° , coming from the east. It has not been explored for more than two hundred miles, and its sources are unknown. As the stream is perennial, it must come from the rainy zone, that is, from within 8° of the equator, or else from some large reservoir not yet heard of. If length is a test of precedence in the affairs of rivers, it may prove a formidable rival even to Sir Samuel Baker's Nile, for its source may possibly be among the snowy mountains; and in this direction another great discovery may lie in store for some one hereafter.

The names of Mr. Cooley and Mr. McQueen must not be omitted from the list of contributors to the Nile literature. Their writings on the subject have often been of great importance. Numbers of travellers also have visited and described the Nile below Khartoum, and their works are, perhaps of equal interest with the accounts of more remote discovery. Mr. Melly's volumes, and the Paper on the Voyage of the Dutch Ladies, in a recent number of our Historic Society's Proceedings, are among the most interesting. The map just published by Mr. Stanford is part of the best literature of the subject. It is only a pity that he has taken too much for granted as to the size and shapes of the lakes, and that he has put in heights, never likely to be confirmed, as if they were correctly measured.

But this map, recording the results of a few years' active explorations, must fill us with astonishment. Here are lakes half as large as England, at the foot of mountains loftier than the Alps, as near to Zanzibar as Perthshire is to London, with no parching desert, no uninhabited waste between; and yet lakes and mountains alike remained unheard of, except in what seemed to be floating fables, through all the centuries of modern civilisation. To account for this seems almost another mystery of the Nile. We can only exclaim, "Turks!" with Mr. Werne. The

gates of eastern Africa have been in their hands ; and the Mohammedan world is like its own pale symbol—a crescent that never grows.

The climate of the lake district seems in many places healthy ; the heat, such as Europeans can bear. Rain falls all the year round in frequent showers, heaviest about the equinoxes, with sunshine generally between them. The vegetation is wonderful ; grass twelve feet high ; grain ten feet high ; trees, among the largest in the world. Captain Grant brought home specimens of seven hundred and fifty species of plants, about ten per cent. being new ; coffee, cotton, India-rubber, and many hard-wood timber trees are among them.

There are several kinds of grain, and the natives have somehow learned the art of brewing. They make a fermented wort, which will not keep many days, but is strong enough to be intoxicating. Pombe is the name of this home-brewed beer ; and when a man gets drunk and stays at home, as he usually does, to do it thoroughly, he is said to be sitting upon Pombe. He sits upon Pombe as often as convenient, regarding intoxication as one of the legitimate pleasures of life. This, perhaps, must be taken as some approach to civilisation.

Animals are abundant, and they include the elephant, buffalo, rhinoceros, hippopotamus, giraffe, zebra, lion, wild boar, hyena, and numberless antelopes. Of these the giraffe is the tallest, the African elephant, rhinoceros, and hippopotamus are the bulkiest, of existing quadrupeds. Size, so predominant a feature in all the natural phenomena of the great Continent, seems to produce a grotesque emulation in the minds of the inhabitants, who aspire after it in barbarous ways. Bruce, speaking of the fat Queens of Sennaar, says, "One of these seemed to me, next to the elephant and rhinoceros, to be the largest living creature I

had met with." Captain Speke brought home the dimensions of a Lunar lady, built on the same scale, which are equally ludicrous and disgusting.

The ostrich, guinea-fowl, pigeon, heron, adjutant, hawk, crane and vulture are among the larger birds; snakes do not seem very numerous, but the insects are swarming; the tsetse is among them, and another fly, the donderobo, has been described as being fatal to such domestic animals as the tsetse spares.³⁹ The rocks are chiefly primitive; iron and copper are found. Gold has been said to occur on Kilimanjaro. If it should ever be found abundantly there, a new race may settle rapidly on these Mountains of the Moon.

This indeed suggests the darkest part of the whole picture. The present races inhabiting those equatorial regions are brutal, vicious and wretched; and, such small intercourse as they have with the outer world being chiefly through the slave trade, they are not likely to be the better for it. It is worth remarking that in the *Periplus of the Erythrean Sea*, written some eighteen centuries ago, knives, hatchets, brass and copper for bracelets, and coloured cloths are mentioned as the chief articles sent from Egypt to the east coast of Africa, in exchange for ivory.⁴⁰

As to the Mountains of the Moon, the facts are these:—Ptolemy, in the second century, believed that a chain of mountains bearing this name ran east and west, about 12° south of the equator, and near the sources of the Nile; fifteen hundred years afterwards nobody had ever found these mountains, but it came to be understood that in the interior of Africa, west of the Zanzibar coast, there was a large district called Monomoegi, or something like it, and that the name signified the country of the Moon. Our latest travellers have discovered that there is such a country, near the borders

³⁹ *Journal R. G. S.*, vol. xxxiv., p. 5.

⁴⁰ See Vincent's *Periplus*, vol. i., p. 103, *et seq.*

of the three great lakes, the Victoria, Albert, and Tanganyika, and they give its name with greater accuracy as Unyamuezi, which, in the language of the present inhabitants, means the Land of the Moon. The country is mountainous, and forms part of a line of heights which stretch from east to west, for many hundred miles, a little south of the equator. In this latitude we find the snowy peaks, about two hundred miles from the coast; the mountains of Unyamuezi, three hundred miles west of these; two hundred miles further west, the M'fumbiro cones, reckoned at ten thousand feet high by Speke; and again, after another two hundred miles, the mountains seen by Baker across the Albert Nyanza.

The great Abyssinian chain, coming from north to south, appears to turn westward, or else to widen itself enormously, at its southern end.

Ptolemy's Mountains of the Moon, therefore, appear not to be fabulous; although he placed them too far south; and he must have got their name through some real knowledge of the country. It would seem to follow that this district, since his time, has been inhabited by the same race, speaking the same language. The natives can give no reason for the name; but that is only evidence of its antiquity. Nothing to account for its origin has been noticed in the customs or traditions of the people, or in the nature of their country. They worship nothing at all, and are not therefore moon worshippers; and any interest they may show in moonlight nights is not peculiar to themselves. Their persistent barbarism for an unknown length of time is indicated by the absence of any ruins of former greatness. The only link connecting them with the past is the one name, Unyamuezi. But this link is perfect. It seems impossible to doubt that the name has adhered to the country since the time of Ptolemy. A land of the Moon, so nearly where he placed the Mountains of the Moon, cannot be an accidental coinci-

dence ; and as the name is not foreign, but belongs to the present living language, the inference that the inhabitants have remained there for nearly twenty centuries is almost unavoidable. Their history is perhaps wrapped up in the unknown origin of the name.

It is a curious circumstance that although Marco Polo mentioned the Island of Madagascar by the name of Magaster, Covilham, two centuries later, immediately after its actual discovery, wrote of it as the Island of the Moon.⁴¹ The name occurs also in Al Edrisi, and is still preserved in the Comoro Islands, a group between Madagascar and the African coast, exactly in the latitude of Ptolemy's Mountains, — "*Komr*," or "*Kamar*," being Arabic for Moon. The name of the Queen of Night has clearly been associated in some special manner with the geography of eastern tropical Africa.

On the whole, the literature of Nile expeditions is much less remarkable than the discoveries recorded by it, and, unless Bruce is to be excepted, it does not include any single work of really first-rate excellence ; but it brings together the thoughts and observations of a great number of energetic and courageous men, engaged at different periods in working out the same problem, and it gives, from many different points of view, an account of one of the most interesting portions of the world we live in. A traveller to the tropics may gather from it everything that he has need to know before-hand, and an Englishman at home will find in these books much that is valuable and interesting, to whatever branch of knowledge he may devote himself. At the same time it is a pity, certainly, that travellers generally are not better writers. There are splendid subjects for books of world-wide and permanent interest, when men of real literary power undertake the

⁴¹ Vincent, vol. i., pp. 196, 214, 224.

journeys now usually left to the physical energy of sportsmen, or the practical skill of traders. The chivalry of our day may recollect that the old Nile has still a final crown waiting for a final conqueror; and that if it should be won by a man whose powers are equal to his opportunity, his story may supersede all others on the subject, and be recognised as the real epic of the Nile.

EIGHTH ORDINARY MEETING.

ROYAL INSTITUTION, February 4th, 1867.

THE REV. C. D. GINSBURG, LL.D., PRESIDENT,
in the Chair.

Previous to this meeting,

AN EXTRAORDINARY MEETING

was held, according to notice, to consider, for the first time, the adoption of the following additional Laws to the Society's code, as recommended by the Council:—

CORRESPONDING MEMBERS.

1. Any person not residing within ten miles of Liverpool, and likely to further the objects of the Society, may be proposed as a Corresponding Member, on the recommendation of the Council.

2. The number of Corresponding Members shall be limited to thirty-five. They shall be elected in the same manner as Honorary Members, but only for the term of ten years.

3. Corresponding Members shall not be subject to any of the expenses of the Society, nor have any share in its property, nor vote thereupon.

The following alteration was also considered for the first time.

To insert, in the first Paragraph of the Society's Laws, on page 8, and entitled "Constitution of the Society," the words "*Corresponding Members*," immediately after the words "*Honorary Members*."

At the ORDINARY MEETING which followed, Mr. E. Burden and Mr. Joseph F. Robinson were balloted for, and duly elected members of the Society.

Mr. Higginson then alluded to the bony rings occupying the margins of the orbits in the skeleton of the eagle owl, shown by Mr. Moore at the last meeting. Mr. Higginson exhibited the eyeballs of the common owl, filled with wax, so as to show their form, and the place of the bony ring as an integral portion of the globe. Some other eyes, filled with plaster of Paris, were exhibited by Mr. Higginson, and the interesting structure of the nictitating membrane, and its muscles, shown on an enlarged model.

Mr. T. J. Moore exhibited a cleaned specimen of great beauty of the Venus's flower basket (*Euplectella Aspergillum*), lately added to the two specimens in the natural uncleaned state in the Derby Museum, and which were exhibited at a recent meeting of this society.

Mr. M'Mullen, M.A., of Huyton, then read a paper "On the Cosmogony," which was followed by a long and animated discussion, in which Drs. Ginsburg, Inman, and Birkenhead, the Revds. H. H. Higgins and Kennedy Moore, and others took part.

NINTH ORDINARY MEETING,

ROYAL INSTITUTION, February 18th, 1867.

J. BIRKBECK NEVINS, M.D., VICE-PRESIDENT,
in the Chair.

AN EXTRAORDINARY MEETING

was again held, before the above, when it was proposed, and carried unanimously, that the new Laws relating to Corresponding Members, agreed to at the last Extraordinary Meeting, should be confirmed and adopted.

At the ORDINARY MEETING which followed, the Rev. H. S. Maye, B.A., Rev. R. J. Fairclough, and Dr. Hallett were balloted for, and duly elected members of the Society.

The Rev. H. H. Higgins exhibited two specimens of a rare shell, *Ficus pellucidus* of Deshayes, from Rosemary Island, Australia. These specimens were lately presented to the Derby Museum by the Rev. E. R. Beadle, of Philadelphia. Mr. Higgins also exhibited a rare coral, *Mussa recta*, lately acquired by the museum.

Mr. T. J. MOORE read extracts from letters lately received, viz., from Mr. J. Yate Johnson, dated Algiers, Feb. 1, 1867, in which the writer compared the marine fauna of the Algerian coast with that of Madeira; and from Mr. R. B. N. Walker, dated Gaboon, Nov. 17, 1866, in which the following remarks occur:—

“I am firmly convinced that the Ogowe is a most important river, having a course of certainly not less than a

thousand miles, probably much more; and I venture to hazard the assertion that its source must be looked for in Sir S. Baker's Luta Nzige, or Albert Nyanza, and though I may not be so fortunate as to be able to prove this, future travellers, I confidently assert, will find that my belief is well founded.

"I differ entirely with Du Chaillu in his statement to the British Association that Equatorial Africa is covered by a belt of dense forest; on the contrary, the Ogowe, at two hundred or two hundred and fifty miles from its mouth, runs through prairie land and grass-covered mountains, extending as far as the knowledge of the natives goes; they know not where the forest is again found, but it is at an immense distance in the interior, as I have questioned slaves from all parts, some of them apparently from the shores of the Luta Nzige, or at least to whom the existence of that magnificent lake is known."

Mr. Walker had been unable to resume his explorations of the interior of that part of Africa, but was exceedingly anxious to do so as soon as circumstances would permit. Much interest in his behalf had been displayed by the French admiral Vicomte A. de Langle, and by the American missionaries and others.

Mr. Moore exhibited the following additions, just presented to the Derby Museum by Captain Alexander Browne, s. s. "Agia Sofia," an associate of the society, by whom they were obtained during his last voyage to the Mediterranean, viz.— Small samples of breccia, containing mammalian bones and broken flints, from the entrance of the Dog river, near the sculptured rocks in the vicinity of Beyrout; and eighteen fragments of terra cotta, dug up by Captain Browne about two miles from Larnaka, in the island of Cyprus. They were from a limited district, which presented the appearances of having anciently contained a terra cotta

manufactory, which had been suddenly destroyed. The British consul supposed the age of at least some of them might be 200 B. C.

At the request of the chairman, Mr. H. ECROYD SMITH made the following remarks on these terra cottas:—He considered them to be of various dates, and to some extent representing several epochs in the history of the “fortunate isle,” as it was often termed, which, first colonised by the Phœnicians, was successively occupied by the Persians, Greeks, Egyptians, and Romans. Hence the pottery is of a mixed character, several examples, including two male heads, being probably Phœnician, others inferior Greek, Egypto-Phœnician, and Greco-Roman. Several of the figures are hollow almost throughout, and apparently rude and rejected models of ‘prentice hands. In several specimens, a basis or central nucleus appears in the fractured necks, harder than, and no doubt for strengthening, the outer coating; but this was not an uncommon mode of manipulation in the early potteries.

A paper was then read by Mr. Edward Jones, B.A., on “English Orthography, Past, Present and Future.”

TENTH ORDINARY MEETING,

ROYAL INSTITUTION, March 4th, 1867.

J. BIRKBECK NEVINS, M.D., VICE-PRESIDENT,
in the Chair.

A general feeling being expressed that the Society's meetings should begin at an earlier hour, it was resolved that an Extraordinary Meeting should be called, to consider the subject.

Mr. Joseph Hewitson and Mr. James W. Topham were balloted for, and duly elected members of the Society.

The Rev. H. H. Higgins exhibited, and made some remarks upon, a small series of sand shells from the desert of Sinai, lately presented to the Derby Museum by the Rev. E. R. Beadle, of Philadelphia, U.S.A.

Mr. T. J. Moore exhibited a pair of gigantic crabs (*Macrocheira Kaempferi*), from the Japanese sea, lately acquired from the widow of Dr. Siebold, the discoverer of this remarkable species. Mr. Moore also exhibited a *Hippocampus*, in spirit, and a drawing of the creature in its living state, made by Captain Mortimer, of the ship "America," Associate of the Society, who kept the specimen alive for many days aboard ship; also a fine series of sea urchins, of the genera *Echinarachnius* and *Mellita*, and a string of egg capsules of the univalve mollusc *Busycon canaliculatum*; all recently collected in a voyage from Savannah, and presented to the Museum, with many other specimens, by Captain Mortimer.

The following paper was then read:—

CHEMISTRY IN RELATION TO OTHER SCIENCES.

By E. DAVIES, F.C.S.

ONE of the most striking results of modern research is the removal of the definite landmarks which formerly separated one department of study from others. The grand generalisation which reduces the manifold forces existing in nature to one Protean principle, connects all branches of science by interpenetrating bonds. One natural science cannot be thoroughly studied by itself, and the student, whilst devoting his mind to one science, or even section of a science, must have a more than superficial acquaintance with the whole face of nature.

Mankind are awakening to the truth of this fact, and in the rebellion against the limited number of subjects, a knowledge of which was supposed to constitute education, an imperative demand is made for instruction in the natural sciences.

My object is to show the importance of Chemistry as an aid in the study of the various departments of nature; firstly, by showing its general effect on the progress of the natural sciences, and secondly, by adducing some recent discoveries as examples of its influence. Chemistry being the study of the facts connected with the elementary bodies which constitute our earth, and the laws which govern their union with, or separation from, each other, must necessarily lie at the root of all complete investigation of natural phenomena. The wild speculations which pervaded science before chemistry became settled on a basis of determined

facts, have one by one passed away, and are replaced by views which owe their influence to their real or supposed agreement with facts, mainly derived from the study of Chemistry.

What arithmetic is to the higher branches of mathematical study, Chemistry is to the natural sciences, as it supplies the knowledge of the principles which rule the mineral and organic kingdoms. It is the most positive of the sciences, as it will grant nothing which resists inexorable experiment, and therefore confines itself to the study of the facts connected with matter, and does not meddle with the forces which produce natural phenomena.

To Geology it is an indispensable companion, yet it has been often totally disregarded in hypotheses as to the origin of rocks. Thus dolomite has been supposed to have been formed by volatilisation of carbonate of magnesia from below into limestone strata. The chemical objections to this theory are, that carbonate of magnesia is decomposed by heat into carbonic acid and magnesia, and that magnesia cannot be fused, much less volatilised, at the highest temperature hitherto attained.

The earlier rocks, the so-called metamorphic and granitic rocks, were at one time unhesitatingly attributed to the action of intense heat. Modern chemical discoveries throw great doubt on the igneous theory, even with regard to granite, and render it extremely probable that water, under the influence of heat, produced the results which we see.

Mineralogy is still more dependent upon Chemistry, for in it we have substances of a definite chemical composition to deal with. Formerly physical properties alone were the guides in the arrangement of minerals, and the most diverse substances were brought into immediate connection. The formation of minerals was generally attributed to the action of intense heat, but Chemistry has shown that many may be

artificially produced by the action of aqueous solutions; and in the case of others, by showing that they are decomposed by strong heat, or would under its influence act chemically on surrounding substances, it proves that they were not produced by igneous action. Iron pyrites can be prepared artificially in the wet way, and under the action of heat lose nearly half their sulphur. The diamond cannot have been produced by the fusion of carbon, for if air were present, carbonic acid would be produced at an intense heat, and even in its absence the diamond is converted into a coke-like mass at high temperatures.

In the vegetable kingdom each plant is a wonderful laboratory. From the simplest bodies—carbonic acid, water, ammonia, and mineral salts—compounds of wonderful complexity and the most diverse properties are formed. Acids, alkaloids, and neutral bodies are thus produced, and the chemist with all his resources is only just entering upon this field of labour. Still many organic substances have been prepared from inorganic materials, as alcohol and its derivatives, many hydrocarbons, formic acid, &c., are a few of a yearly increasing list. Many valuable substances may be artificially prepared from other organic substances; and it is within the bounds of possibility that sugar, quinine, &c., may some day be prepared in the laboratory, and we may thus be rendered independent of all foreign supplies.

In the vegetable should be, if anywhere, the home of "vital force." The task of producing complex bodies from simple ones, at least appears greater than that of assimilating and then decomposing them. The animal only appropriates the albumen, fibrin, and caseine which it finds in the plant; and in transforming saccharine into fatty bodies, it probably performs its most constructive act, chemically speaking. We have the vegetable under control. The microscope shows us its interior working; and although we cannot reproduce,

in the majority of cases, out of the plant, the results which we remark in it, we see that the changes are chemical; from definite chemical compounds other definite bodies are produced; and, in short, the action of the vegetable is the chemical one of combination and de-oxidation. It will be as well to give up the search after the cause which, under precisely similar outward conditions, causes each different seed to produce a plant after its kind, and directs the formation of leaf, stem, flower, and fruit. This is unknown; and we do but veil our ignorance under a cloak of words when we give it a name which would seem to ally it to those forces, some of whose laws are known, and whose working can be predicted. It is a condition, or sum of conditions, under which certain chemical actions take certain directions, and which, while it governs their limits and affects their results, does not do so in violation of chemical laws.

In thus speaking of life, the question arises, Can this condition or state be brought about by any different means than that of generation, or descent from an ancestor? We cannot positively answer this question; the researches of Pasteur tending to deny it, and the carefully conducted experiments of Pouchet leading to the conclusion that both vegetable and animal life may thus originate. I cannot believe that chemical force can originate life. In the experiments alluded to, already organised matter was always employed; and no experiments have yet proved that chemical force acting on unorganised material can produce organisation.

In systematic Botany the influence of Chemistry is not so strongly felt, as it deals with the outward appearances of plants. It is, nevertheless, an interesting study to investigate the products obtained from the natural orders, and thus find another bond of union.

In vegetable physiology, the modifications of the seed in

germination, the starch becoming sugar, and this disappearing as cellulose forms, afford an example of the aid given by chemical knowledge. This is a field in which much work remains to be done.

In the animal kingdom, chemical decomposition and oxidation are at work; the tendency being from the complex to the simple. The compound bodies found in the vegetable are by the animal converted into carbonic acid, water, and urea, the near relative of ammonia. There are two classes of food, — saccharine and amylaceous, and albuminous. These have their distinct offices; the former sustaining the animal heat, and the other repairing the waste of the muscular frame. By analysis of the food and the excreta, Chemistry shows that part of the heat produced is transformed into motion, and has exploded the assertion that the action of muscle was due to its oxidation, and that the amount of work was the equivalent of muscle consumed. The carbohydrates thus take their place as force producers; and we can now understand how the Irishman can work on potatoes, the Hindoo on rice, and our own navvies on fat bacon and bread. Chemistry has here lent valuable aid in solving a physiological problem.

The changes in the living body are different in kind and degree from those in the dead. We are told that the dead body becomes subject to the action of chemical laws. This is freely granted; but these laws are at work in the living body too. In both, the final result is the formation of carbonic acid, water, and ammonia with mineral salts; and this takes place with even greater rapidity and precision in the living body. The chemical action called fermentation, where one substance in a state of change induces change in another, is closely allied to some of the phenomena of animal life, and as we gain more knowledge of the true nature of ferments, we shall know more of animal Chemistry.

Closely connected with animal physiology in its normal state is that of the study of diseases, and the healing art. The importance of a knowledge of Chemistry in medicine is to a great degree acknowledged. Though we cannot yet trace the connection in a chemical sense between the remedy and the disease in most cases, yet I believe that we must trace such connection to form a true theory of medicine. In the meantime, a doctor possessed of chemical knowledge will not prescribe substances which neutralise one another, and, by means of the analysis of urine, will obtain valuable information in diagnosis. Poisoning would be repressed if medical men were known to have an acquaintance with toxicology, and by the analysis of vomited matters, or of the urine, the murderer might be checked ere his work was done.

Definite chemical substances are largely replacing crude unknown medleys. By administering, for example, quinine, instead of peruvian bark, the doctor is able to know the precise quantity of active medicine given, and the patient is relieved from the nauseous task of swallowing a vast amount of inert matter.

On leaving the earth it would seem that we should leave Chemistry behind. It is so distinctly a science of experiment, that to bring it to bear on objects whose distance makes millions of miles familiar to our ears, however indefinite to the mind, would seem a hopeless task. For long ages our only acquaintance with the outside universe was through meteoric stones. These contain no other elements than those which we meet with on the earth, but it is not certainly known whence these come, and the question remained, "Is our sun, and are the far distant stars which spangle the heavens, of like composition to our earth?" Modern science answers this, and though it be by means of optics, yet spectrum analysis was the discovery of chemists, and Chemistry gave the key to its mysteries.

It is not the object of my paper to explain the principles of spectrum analysis. It suffices for the purpose in view, to show that the most abstruse problems of astronomy,—as the nature of nebulous matter, the question as to whether nebulae are in all cases composed of stars, or in some instances agglomerations of vaporous matter, and the nature of comets,—are in process of solution, and that it is Chemistry which has given the clue.

When it was shown that each element has the power, when in a state of vapour, of indicating its presence on a spectrum by bright bands, and when a further discovery proved that the bright bands could be converted into dark lines, it became a matter, if not of absolute certainty, at least of the utmost probability, that like effects indicated like causes, and that the dark lines in the sun's spectrum show the presence of elements, the same as those which compose our earth, in its atmosphere of glowing vapour and in its incandescent mass.

Room is found for speculation as to the ultimate composition of matter in the tidings which some of the nebulae send us. Here all the metallic elements are absent, and almost all the metalloids, hydrogen, nitrogen, and an unknown substance, alone remain. If by the condensation of such vapour the various systems of the universe have been formed, we shall have to abandon the present list of elements, and should at once endeavour to prove them compounds. It may be that there is only one primal form of matter, and it is remarkable that the latest achievement of science should give some support to an ancient speculation.

In the mechanical appliances of Astronomy, Chemistry has lately done much. The preparation of reflectors, silvered by deposition of metallic silver, bids fair to place telescopes

of great power in the possession of persons of moderate means. By coating the eyepiece of a telescope with a thin film of silver, deeply coloured glasses can be dispensed with, and a better view of the sun's surface obtained. It is probable that more certain information of the constitution of the great source of light and heat will thus be attained.

Time would fail to speak of every branch of science. Agriculture has reaped the advantage of its alliance with chemical science, in the introduction of artificial manures, in the adaptation of crop to soil, and by analysis pointing out deficiency, the missing ingredient in the land can be discovered, which, if supplied, would make the wilderness to become a fruitful field.

Microscopical science owns Chemistry as her friend. It supplies re-agents to test the nature of the minute organisms brought within view, gives preservatives to keep the objects in perennial beauty, and in the lovely crystalline forms and colours of many salts, especially under the influence of polarised light, provides objects whose splendour recalls the fabled caves of Indus, where trees bore fruit of rubies, emeralds, and diamonds.

I have thus passed in rapid review the various sciences called natural, and, to give application to the general principles laid down, desire to call attention to a few recent discoveries in Chemistry having reference to them.

In Geology, perhaps no rock has given rise to more discussion than granite, with regard to its formation. By means of the oxy-hydrogen blowpipe, on a large scale, silica has recently been fused in considerable quantity. This fused silica is amorphous or glassy in structure, and has the sp. gr. 2.80. Silica, which we know has been deposited from aqueous solution in a crystallised form, has sp. gr. 2.60,

and the latter figure is the density of quartz in granite. Dr. Percy, in a recent course of lectures, says, "In this simple fact we have a foundation for the inference that granite could not have been formed under the condition of a high temperature."

I may perhaps be excused for alluding to a discovery of my own with reference to the production of anhydrous peroxide of iron. Dr. Percy calls particular attention to this as an unexplained matter. By exposure to a gentle heat, 50° to 60° , for a period of from six weeks to three months, in presence of water, hydrated peroxide of iron loses almost all its water, whilst under the influence of dry heat of the same degree no such dehydration takes place.

In vegetable physiology, it has been lately discovered that plants cannot decompose carbonic oxide. To account for the formation of the carbohydrates, which form so large a proportion of the vegetable structure—as starch, gum, sugar, and cellulose—the simultaneous decomposition of carbonic acid and water must be admitted, and thus the formation of these bodies becomes very clear and simple.

In animal physiology, perhaps the most startling assertion of modern science has recently been made. In a paper recently read before the Royal Society, Dr. Montgomery gives the results of experiments in which he formed cells, which, in all respects, were similar to those produced by vital processes. The substance used was myeline, obtained by treating hard-boiled eggs, brain substance, and other animal products with alcohol. It is also found in plants, and in seeds, especially in peas. This amorphous substance, under the action of albumen, either in white of egg or serum of blood, furnished the cells in question. To give his own words:—"By mixing myeline with blood serum globules were formed, showing the most lively molecular motion.

When the serum somewhat preponderated, the whole globules seemed after a while to undergo coagulation, and appeared often as beautifully and finely granulated as any real 'cell.' When this mixture of myeline and serum was spread very thinly on the glass slide, there often started into existence, on the addition of water, small primary globules, round which an irregular mass of granular material became gradually detached from the glass slide. It at last shaped itself into a secondary globule enclosing the primary one, and constituting with it, down to the minutest details, the most perfect typical 'cell.' In many instances the nucleolus did not fail, and the narrow white margin so often mistaken for a cell-wall was always present. Beautiful mother-cells were formed in the same manner. By operating in a different manner, bi-concave discs were formed, but usually much larger than blood-corpuscles." The Author, in conclusion, states that "'cells,' being thus merely the physical result of chemical changes, can no longer afford a last retreat to those specific forces called vital." Whether we consider this dictum as too absolute or not, there can be no doubt of the importance of the field for investigation thus opened.

I trust that there will remain no doubt that the successful student of natural science must possess chemical information. The fascination which Chemistry has exerted upon the greatest minds is thus explained. We can now understand why Newton studied alchemy; how Watt, in the midst of his mechanical labours, found time for research in Chemistry, which made him a co-discoverer with Cavendish of the composition of water; and that Faraday, Graham, Tyndall, and a host of others found in Chemistry a basis on which to build the beautiful structure of natural and physical science. Thus too must we work, not contenting ourselves with the superficial appearances of things, but diving into the secrets

of their ultimate composition and chemical changes. Thus shall we have a touchstone to distinguish between the pure gold of truth and the base metal of error, and with brighter light shall prosecute our researches into the world of wonders around us; each day developing the simplicity and the grandeur of the laws emanating from the Almighty Creator.

ELEVENTH ORDINARY MEETING,

ROYAL INSTITUTION, March 18th, 1867.

The REV. C. D. GINSBURG, LL.D., President,
in the Chair.

AN EXTRAORDINARY MEETING

was held before the above, to consider for the first time the following alterations in the Society's Laws :—

In Law 41. To omit the word "Half-past."

In Law 47. Instead of "Eight o'Clock," to substitute the words "a Quarter to Eight o'Clock."

At the ORDINARY MEETING which followed,

Mr. T. J. Moore exhibited an interesting series, lately added to the Derby Museum, of breast bones (sterna) of the ostrich tribe, viz., two of the rhea, one of the ostrich, two of the emu, and one of the cassowary. "The sterna of most birds are developed from one pair of ossific centres, which, coalescing in the midline, usually consolidate the cartilaginous basis of the keel by continuous ossification therein" (Owen, *Anatomy of Vertebrates*, vol. 2, p. 20). In one rhea sternum, that of an adult bird, this ossification of the contiguous plates had taken place, but had not yet done so in the other sternum, though of nearly equal size. The ostrich sternum, though large, had not yet ossified into one piece. In the emu sterna, both of small size (the smaller being only $2\frac{3}{4}$ inches in length, including a posterior boundary of cartilage) ossification of the two parts had already been accomplished. The cassowary sternum was of full size, showing no trace of division.

Mr. A. Higginson made some remarks on the sternal bones of vertebrata generally, and expressed his satisfaction at the above acquisition, and that Osteology was so well cared for.

The following paper was then read :—

COMPULSORY EDUCATION.

By C. FLUECK, Esq.

COMPULSORY Education is a subject which of late has largely occupied the minds of statesmen and philanthropists, and has so often been spoken and written about, that it might be said that any further observations on such a matter are superfluous, inasmuch as everything that can be brought forward in support of the question has already been said repeatedly, and most ably. Yet, although I do not claim it as a merit of this paper, that it will bring much, if anything under the notice of this Society, which is new or better than what so many others have said before me, I cannot otherwise but consider the matter as of such vital importance, that I think nothing ought to be left undone which is calculated to bring this question to a satisfactory solution; and for that reason I beg you will not consider it presumptuous on my part, if I bring this subject before you. It is the bounden duty of every well-meaning and educated member of the community, not only to take an interest in everything which concerns the moral and physical welfare of his fellow-beings, but to lend a helping hand, according to his powers, towards improving those who are in need of it; and towards abolishing, as far as possible, certain crying evils which have existed so long to the disgrace of a civilised nation. The question has been repeatedly asked, whether education will do away with these

evils. If there be any truth in statistics, we are justified in drawing conclusions from them. Let us look at the statistics of poverty, immorality, and crime. Which are the classes that furnish the largest quota under each head? What tale do the calendars of sessions and assizes unfold? Who are they that figure in these lists of crime in the largest numbers? Certainly not those who have received even an inferior education, but those who, through the wickedness and neglect of their natural guardians, have grown up in utter ignorance. These facts alone, setting aside all others, prove therefore, not only that the uneducated classes produce by far the largest number of criminals, but consequently that education, by raising the moral status of its recipients, has the effect of preventing and diminishing crime.

Again, it is said, "How is it that, if education produces such good effects, with so greatly increased facilities for imparting and receiving secular and religious instruction, all the evils complained of are vastly on the increase?" The amount of crime is certainly as large as ever, but I do not think that we are justified in saying it is on the increase, taking the rapid growth of the population into consideration, especially in the large centres of manufacture and commerce. Secondly, even granted that, with increased facilities of education, crime in proportion has not diminished, is this a proof that education is at fault? Is it not more reasonable to arrive at the conclusion, that those classes, for whom all those great and praiseworthy efforts and sacrifices have been made, never derived the intended benefit from them? And why not? Because they are not only utterly indifferent, but absolutely refuse, for reasons of their own, to accept anything of the kind by mere persuasion. The consequence of all this is, that there exists, not only among the adult of the lowest classes an amount of ignorance, profligacy, prosti-

tution, and crime, which is perfectly sickening to behold; but, what is more horrifying still, that there also exist thousands and thousands of children, who not only are born and brought up amidst this pestilential atmosphere, but are systematically trained to be, and remain, festering ulcers and birds of prey of human society. For the former there is, I am afraid, very little hope of improvement, but for the latter we need not despair. With renewed and properly directed efforts, there is no reason why we should not succeed in bringing these stray sheep back into the fold, and in making them industrious, useful, and God-fearing members of the community. Assuming that a proper education would lead us to the desired result, but that all attempts which have hitherto been made in that direction have utterly failed, is it unreasonable that we should come to the conclusion that there are no other means left to us but compulsory education.

Compulsion — yes! “But look at the multitude of obstacles which show themselves in the way of such a measure; look at its probable interference with certain rights, and the violent hands it will lay upon the liberty of the subject.” These are the woeful songs, accompanied by the cry of increased rates and taxes, which are dinned in our ears. Now let us see whether there is any real foundation for all this clamour.

First of all, the inviolability of the liberty of the subject.

What is the liberty of the subject? What does it mean? How far does it go? And when does it cease? Does it mean that every free-born Briton can do what he likes, or that it confers upon its fortunate owner an unlimited power of disposing of his own in whatever way his fancy leads him? Although very absurd, these ideas have nevertheless taken deep root in the minds of some people, whom it is not only very difficult to convince of their mis-

conception, but who, in their firm belief in the infallibility of their argument, use it like a sledge-hammer whenever the opportunity offers itself. For all that, the truth remains, and must be forced upon these people, that from the moment any individual commits any act whatever, which, either directly or indirectly, tends towards injuring the moral or physical welfare of his fellow-beings, his claim to the protection of the liberty of the subject ceases; and the law, if there be any for the purpose, has a perfect right to compel the originator of the nuisance, either to abstain from continuing it, or, in case of non-compliance, to punish him. Should there be no law for the purpose, then the community are not only justified, but in duty bound, to put in motion every legal means by which to obtain such powers, which will enable them to abolish the nuisance and punish the offenders. To say anything further on this head would be superfluous. In spite of its "*noli me tangere!*" the liberty of the subject is interfered with, whenever the welfare of the community requires it. As an argument it does very well on the hustings, where, without doing much harm, it answers its purpose, because it flatters a free and independent constituency; but under present circumstances it stands about on a par with the assertion, that it is unmanly to bathe without bathing-drawers.

The next objection, which is somewhat akin to the first one, is raised against the interference of a compulsory measure with existing interests and institutions. Well, if compulsion is to answer its purpose, how can it do otherwise than interfere with existing institutions, which hitherto have manifestly failed in obtaining the results aimed at? If these institutions are to be left intact, how is it possible to carry on a strict supervision and control over parents and children, who are remiss in compliance with the requirements of the law and in regular attendance at school? The very aim and

end we are striving for would be frustrated, and any Act of Parliament, which does not give to local authorities full powers of supervision over all primary schools, will invite the proverbial coach and four to perpetual motion, and becomes only a bundle of waste paper. It is true that the Manchester bill offers a remedy for such an evil, by holding out the greatest facilities to existing schools for union with those schools which would fall under the entire control of the local authorities; but it is much to be feared that the offer would not meet with a general acceptance, precisely on account of this very control which would be exercised over them. Therefore, if a compulsory measure is to produce any good effects, it must do more than offer facilities for union, it must compel it. Besides ensuring a perfect control over regular school attendance, compulsory union would have the advantage of simplifying the complicated educational machinery, and making the divided means and efforts more compact, and consequently more efficient.

Objection number three makes its appearance in the shape of increased rates and taxes, and the discontinuance of private voluntary contributions. This bugbear has, no doubt, for a good many people a far more formidable aspect than the two first-named ones; but experience shows us, that such opposition very seldom deters the powers that be from exacting such imposts, when certain sanitary improvements and other changes of more doubtful utility have been decided upon. As a rule the rate-payers submit—without grumbling, for that is a privilege which no Englishman will easily surrender—but pay they do, and will continue to do so, whenever called upon in a sensible way. Besides, there are two other points which may be brought forward against the objection. Under the present system of education of the poor, the burden has been resting upon the shoulders of comparatively few, whilst a great portion of the

members of the community escaped scot-free. An equally divided educational rate will do away with this injustice, and will enable the charitably inclined (this in answer to the 2nd part of the 3rd objection,) to make use of their contributions in another direction, *i. e.*, for subscriptions and endowments of childrens' infirmaries and other benevolent institutions of a similar kind, which are very much in need of increased assistance. The second advantage to be obtained is the prospective diminution of heavy rates, which are paid for the maintenance of gaols and workhouses.

But I may be told: "Granted that all these objections are untenable, what will you do about religious instruction? Will not our religious differences at once, and for ever, put a stop to any such measure as you are advocating?"

Well, I will not deny that denominationalism is an obstacle which it is not very easy to overcome; but it is also my firm conviction that this formidable stumbling-block is mainly the creation of our own fears, and that if we were to pluck up courage, and set manfully to work, we should find that there is, after all, nothing that a strong will and perseverance could not remove.

The difficulty to be settled is this: "Who is to give religious instruction, and of what kind is it to be? Are clergymen to be the instructors, and is the teaching to be dogmatical?" I think neither the one nor the other would be desirable, *ex officio*, in public primary schools, which are supported by public rates and taxes. Religious teaching in schools of this description ought to be of the simplest kind, strictly avoiding dogmatical differences, and aiming at nothing further but a sound knowledge of Bible-history, and imbuing the juvenile mind with the broad principles of Christianity. All this could and ought to be done by the schoolmaster, independently of any other religious teaching, which might be given at certain appointed hours, and

in separate rooms, by clergymen of different denominations appointed for the purpose. A "Children's Bible," compiled by a commission composed of members of the different Christian denominations, would serve both as a suitable reading-book, and an appropriate means of imparting those Christian truths which are the basis of all really moral and social life. Religious instruction of this nature, properly adapted to the understanding of its recipients, need not, nor would it, interfere with a more complicated and dogmatical instruction, which might, as it is already the case in workhouses, industrial schools, reformatories, gaols, &c., be given at such times and in such places as the law would prescribe. For this purpose parents and guardians, on entering their children on the school-registers, would have to make a declaration as to the particular denomination they belong to. If our religious differences do not stand in the way where our criminal classes are concerned, why should we consider them insurmountable where it is the question of saving thousands of human beings from impending misery, immorality and crime, and the consequent evils of over-crowded workhouses and prisons? For the Lord's sake, who has taught us mutual love, charity and forbearance, let us for once cast aside our dogmatical quarrels, and hold out a helping hand, in true Christian spirit, to our neglected brethren, who need all our united efforts to make them, with the help of God, what they ought to be, *i. e.* God-fearing men, and useful members of society.

And now for one objection, which this time I take upon myself to make, not to the proposed compulsory measure as such, but to its permissive character. I have before pointed out, that optional union of schools, as proposed by the Manchester bill, would be a means of, to a certain degree, defeating the success of the measure.

I do not for a moment lose sight of the enormous import-

ance and the pressing necessity of obtaining an Act of Parliament, which would enable us to alleviate at least the misery and to lessen the evils produced by the present unsatisfactory state of affairs. But I also know that people are only too ready, under even the most pressing circumstances, to accept any palliative measure, provided it gives momentary relief. Such ought not to be the case. If we once perceive the necessity of a cure, and make up our minds to resort to it, why not at once choose a radical one, if it be within our reach? Whether the evil be a local or general one makes no difference; if the remedy be the same for both in substance, all we have to do is to vary the quantity and strength. The evil before us is a local one in Manchester, but that does not exclude its existence over the whole land. The remedy for Manchester is compulsory education, and it is recommended from thence as equally efficient for the other suffering parts of the country. But is it sufficient that the Manchester people should get the antidote for themselves alone, with the gracious permission for others to use it if they choose? The remedy has already been most persistently offered in a milder dose for those people that require it, and we know how the offer has been accepted. Offer the stronger dose to certain authorities with the option of refusal, and the answer is easily guessed. The Manchester movement is undoubtedly a good one, and goes in the right direction, but it is merely putting in the thin end of the wedge, without striking it home. Unless we obtain a measure which is binding for all alike, we shall only have partial success; and sooner or later we shall be obliged to set to work again, and resort to a measure which, with a little more energy, might have been obtained from the very beginning.

Having said this much about the proposed measure and the objections to it, I will now, with your permission, proceed with that part of my paper in which I wish in a few

outlines to explain to you a compulsory system of education and its practical working, which has been in use for the last thirty-five years in my native country, *i. e.*, the Canton of Berne.

The present system of education in the Canton of Berne took its origin in 1831, and in the constitution of that year we find the following general enactments and definitions:—

“Every one has the right to teach, within the limits fixed by the law.

“No one is allowed to bring up children entrusted to his care, without at least that degree of education which is given in the public primary schools. It is the duty of the people and its representatives to provide a proper education for the young.

“The government and the communes have to support and promote all public educational institutions. The law fixes the proportions of their respective contributions.”

[This clause, in any compulsory measure to be introduced in England, is of vital importance. Without a compulsory educational rate, compulsory education would be utterly impracticable.]

“The weal and woe of every state are based upon the moral value of its citizens; without the proper culture of heart and mind, there is no real freedom imaginable.”

The following are the institutions at present supported and maintained by Government:—

1. Primary Schools;¹ 2. Secondary Schools; 3. Pro-gymnasia and Colleges; 4. The Cantonal Schule at Berne; 5. The University; 6. Training Schools for male and female teachers; 7. Training Schools and refuges for deserted or neglected children and orphans; 8. Deaf and Dumb Institutes.

¹ In 1854, the population of the Canton consisted of 458,225 inhabitants, and the number of children educated at 1,246 Public Primary Schools, was 91,054.

PRIMARY SCHOOLS.

Primary Schools and their purposes are described as follows :—

Public Primary Schools are educational institutions founded by authority of the state, which have the purpose of calling forth and developing the natural talents and mental powers of every child, so as to enable it to fulfil its destiny as a man, a christian, and a citizen.

School Attendance.—All children, having reached their sixth year of age, are obliged to frequent the public primary school of their district; Protestants until confirmation, and Catholics until two years after their first communion.

From this obligation are excepted :—

1. Children frequenting a higher school;
2. Children frequenting a certified private primary school;
3. Children receiving their education at home, provided such education be at least equivalent to that imparted by primary schools; in which case the father or guardian has to give notice of his intention to the local educational board, and has furthermore to prove his qualifications for teaching;
4. Children frequenting any factory-school; in which case the principal has to receive permission from the Secretary of State for Public Education, and has to guarantee an equal education as primary schools offer. The children to receive their instruction during working hours.
5. Children having been found incapable of being taught after a certain time of attendance at school, and children suffering from bodily infirmities.

[Some of the objectors to a system of compulsory education seem to labour under the mistake that, once public primary schools are provided, parents and guardians would be obliged to send their children to these schools. A clause like the foregoing is in itself sufficient to prove the fallacy of such an idea.]

Every pupil has, from his sixth up to his accomplished

sixteenth year of age, to attend school all the year round, with the exception of eight weeks holidays. In summer during at least eighteen, in winter at least twenty-four hours per week. All parents and guardians are compelled to send the children entrusted to their care regularly to school, and have within eight days to account for absences to the teacher. Parents neglecting their duties, are to be reprimanded by the local board, and in case of repetition to be taken before a magistrate and fined or imprisoned. Fines and imprisonment to be doubled in case of further relapse.

[These penalties were inserted in the Act for the purpose of reaching the outlying rural districts, where school accommodation was scarce, and the public mind not so far advanced as in towns and the more densely populated districts. However, an increased number of schools and teachers, and the active surveillance of district school commissioners and school synods, ensured a proper attendance at school, and the rigour of the law had very seldom, if ever, to be resorted to.]

As to the number of primary schools, the law gives the following directions :—

School-buildings.—There is to be provided a sufficient number of public primary schools to make it impossible for any child being debarred from obtaining proper instruction by too long distances, or by over-crowding.

Every school-building has to contain a sufficient number of spacious and lofty rooms, besides a decent dwelling for the schoolmaster, according to plans and regulations laid down by government. The buildings to be constructed, maintained, and repaired by the districts, at their own expense; the proportioned government assistance to be paid, after an official declaration that the building has been constructed according to prescribed plans and regulations, and has been insured against fire to the full amount of its value.

Every public primary school is to be divided, according to age and proficiency of the pupils, into an elementary class, and one or more upper classes ; each class to have its own teacher, and a separate room.

Instruction at Primary Schools.—The indispensable instruction, which both boys and girls have to receive at these schools, consists in —

1. Christian religion ; 2. Knowledge and application of the mother-tongue for reading and comprehension, and for the correct oral and written expression of thoughts ; 3. Arithmetic ; 4. Caligraphy ; 5. Singing.

[Religious instruction consists in reading and explaining the authorised “Kinderbibel,” and learning by heart of hymns, &c. Dogmatical instruction is given when the children have reached a certain age, according to denomination, by the clergyman, at certain fixed hours, either at his own home, or at the places appointed for the purpose.]

The following subjects are to be introduced as soon as the children have been properly prepared :—

1. Linear drawing, applied to distinguishing, representing, and measuring outward forms in their simplest elements.

2. History, with especial reference to the Fatherland.

3. Geography.

4. The elements of natural sciences.

5. General knowledge of the social institutions and leading principles of the constitution, and the consequent position of men towards each other and the state, as well as their principal civil rights and duties.

6. Introduction to book-keeping and husbandry.

The gradual introduction of corporeal exercises is to be encouraged and promoted by the state.

In order to ensure a thorough and systematical instruction, the teachers have not only to follow certain general

rules and directions, but are obliged to furnish the authorities half-yearly with a plan of studies, specifying the gradual process to be followed in each branch, as well as the division of school hours.

No books or other teaching materials are to be introduced in any public primary school without the sanction of the Director of Public Education. Parents, or their representatives, have to provide their children with the necessary books and writing materials. The school districts furnish the requisite boards, maps, &c.; and pay for the necessary books and writing materials to be used by poor children; the materials to remain the property of the school.

Poor districts are to be assisted and encouraged by the authorities with presents of teaching-materials. Government has also to take the necessary steps for ensuring a sufficient supply of the requisite teaching-materials at the lowest possible cost.

Teachers.—Candidates, both male and female, for vacant situations as teachers in primary schools, must have passed the necessary examinations, and be in possession of a certificate. Their election rests with the local authorities, which have to choose from two candidates proposed by the district educational board. No vacancy can be filled up without its having previously been published in the *Government Gazette*. Applications have to be made to the district board, and candidates have to be examined in public by the school commissioner, both theoretically and practically.

All teachers in primary schools are appointed for life, and can only be removed by the decision of a judge.

In case a teacher be not a member of the district board, he is to have a consulting voice in all matters which do not concern him personally.

Although no teacher has to perform any active military duties, he is obliged to instruct young men, from seventeen

to eighteen years old, during a specified time in winter, in their rights and duties as citizens and defenders of their country, and to teach them patriotic songs.

Training Schools.— In order to provide a sufficient number of efficient teachers of both sexes for the national schools, there exist in the Canton four so-called seminaries, or training schools, two for the German-speaking part, and two for the French.

Candidates for these institutions receive their preparatory tuition from eminent schoolmasters, who are selected and paid for this purpose by government.

The obligatory course of studies comprises :—

Religion, psychology and pedagogical science, knowledge of the mother-tongue, arithmetic, geometry, book-keeping, history, geography, natural sciences, singing (and in the German establishments piano-playing), drawing, caligraphy, gymnastics and practical teaching. For this latter purpose there are model schools attached to the seminaries, and some of these institutions are also connected with large agricultural establishments.

The arrangements of these training schools are such, that even the poorest may avail themselves of their advantages. The pupils receive their education gratis, and pay about £4 a-year for board, &c.; but this payment is never exacted from those in poorer circumstances.

No candidate for any vacant situation in any public school is obliged to have been a pupil at these training schools; all that is required of him is that he must pass the necessary examination.

Teachers who wish to do so may attend, free of all expense, during two or three months, the repetition courses, which are held yearly at the training schools.

Educational Authorities.— The educational authorities are constituted as follows :—

1. The secretary of state for public education ; 2. The communal council ; 3. The district educational board ; and lastly, the school commissioner.

The communal council elect the teachers, fix the number of local boards, appoint their members, and prepare, at the beginning of each school-year, a correct register of the children obliged to attend school.

The members of the local boards are elected for six years, and their duties consist in superintending the schools and watching over the strict execution of the educational laws.

The school commissioner is proposed by the director of public education, and elected by government, for the term of three years. His functions consist mainly in watching over and reporting all district educational matters, examining candidates, investigating matters of complaint or dispute, &c. In fact he is the local representative of government.

The members of all school authorities are chosen directly from the general body of electors. The parish clergyman is not *ex officio* a member of any of these boards, but is frequently appointed as such by the parishioners.

School Synods.—Besides the above educational authorities, we have the school synod. This institution has the twofold aim of assisting, on the one hand the public authorities in rectifying and developing public education by exercising their right of motion and advice, and of promoting on the other hand the constant progress and uniform efficiency of the whole body of teachers. All the teachers of the public schools in one district, with the exception of the professors at the university, form together a district synod. They appoint out of their number and from the general body of electors for the term of one year, one delegate for every ten members. The delegates of all the district synods form the school synod of the Canton, and appoint from among their number an executive committee.

The functions of the school synod consist in—

1. Taking into consideration all laws, decrees, and regulations concerning public education.
2. Investigating the general plan of instruction, and approving the teaching materials for the national schools.
3. Discussing the means of improving public education, and raising the status of the nation in general.
4. Examining the reports of the central committee and the district synods.

All decrees and general regulations, concerning public schools, except the university, have, before promulgation, to be submitted to the school synod or its executive.

The district synods, as well as each member, have the right of bringing motions concerning educational matters before the school synod.

The general synod has to meet once a year, but can also be brought together at the call of the director of public education, the central committee, or at the request of five district synods. Besides performing the already mentioned duties, the district synods are enjoined to promote their mutual improvement in knowledge, and in the efficiency of conducting the schools entrusted to their care.

Every year the central committee has to submit to the district synods two pedagogical questions, and lays the respective answers before the general assembly.

The district synods are obliged to meet at least twice a year, and the attendance of members is compulsory. Each member is also bound to write yearly two essays.

[The district school commissioners and school synods have been proved to be of the utmost value in the proper carrying out of the compulsory system in Switzerland, especially in the outlying rural districts, where, besides other difficulties, the narrow-mindedness and obstinacy of parish authorities had to be overcome. There, as well as in England and elsewhere, "Bumbledom" could or would not see the advantages of education, and had to be driven to do its

duty by those who knew better ; and the establishment of similar educational authorities in this country would, I presume, prove as necessary and efficacious as it has done in Switzerland.]

Having arrived at this point, I have brought the subject to a conclusion, as far as compulsory primary education is concerned. I should have liked to go a little further, and describe to you the manner in which the higher educational establishments, starting from this broad basis, are connected with each other, the general principles upon which they are conducted, and the final results obtained. As time would not permit my doing so, I have confined myself to the most important part of the subject, and all I wish for is, that the system I have laid before you may contain some useful hints, and that my own remarks may have the effect of calling forth a thorough discussion of a question which is of the utmost importance to this country.

ADDITIONS TO THE LIBRARY,

RECEIVED FROM MAY, 1866, TO MAY, 1867.

	Title.	Donor.
1866,		
OCTOBER 15th.		
	Journal of the Society of Arts, May to September	<i>The Society.</i>
	Journal of the Scottish Meteorological Society,	
	April and July	<i>The Society.</i>
	Journal of the Linnæan Society, nos. 38-87 .	<i>The Society.</i>
	Quarterly Journal of the Geological Society,	
	May and August	<i>The Society.</i>
	Journal of the Chemical Society, May-October .	<i>The Society.</i>
	Report of the British Association for 1865 .	<i>Dr. Inman.</i>
	Journal of the Royal Geographical Society for 1865	<i>The Society.</i>
	Journal of the Statistical Society of London,	
	June and September	<i>The Society.</i>
	Journal of the Franklin Institute, January-	
	August	<i>The Institute.</i>
	Proceedings of the Zoological Society, 1865 .	<i>The Society.</i>
	Proceedings of the Royal Society, nos. 83,	
	84 and 85	<i>The Society.</i>
	Proceedings of the Literary and Philosophical	
	Society of Manchester, vols. 3 and 4 . . .	<i>The Society.</i>
	Journal of the Royal Asiatic Society . . .	<i>The Society.</i>
	The Anthropological Review, January and April	<i>The Society.</i>
OCTOBER 29th.		
	Journal of the Society of Arts, nos. 726, 727 .	<i>The Society.</i>
	Monthly Notices of the Royal Astronomical	
	Society, no. 9, vol. 26	<i>The Society.</i>

Title.	Donor.
Journal of the Franklin Institute, September 1866	<i>The Society.</i>
Transactions of the Liverpool Polytechnic Society October 20	<i>The Society.</i>
Proceedings of the Liverpool Architectural and Archæological Society, October 17 . . .	<i>The Society.</i>
Transactions of the Northumberland and Durham Natural History Society, vol. 1, part 2 .	<i>The Society.</i>
Report of the Proceedings of the Birkenhead Literary and Scientific Society, 1865-6 .	<i>The Society.</i>

NOVEMBER 12th.

Journal of the Society of Arts, nos. 728, 729 .	<i>The Society.</i>
Proceedings of the Anthropological Society of Manchester, and Inaugural Address of the President	<i>The Society.</i>
Transactions of the Royal Irish Academy, vol. 24, part 3, Literature, part 5, Science, . parts 5, 6, Antiquities	<i>The Academy.</i>
Paper on the Vale Crucis Abbey, by M. G. Jones	<i>The Author.</i>
Proceedings of the Royal Society of Edinburgh, session 1864-5	<i>The Society.</i>

NOVEMBER 26th.

Annual Report of the Halifax Literary and Philosophical Society, 1866	<i>The Society.</i>
Transactions of the Liverpool Polytechnic Society	<i>The Society.</i>
Proceedings of the Liverpool Architectural and Archæological Society, November 1866 . .	<i>The Society.</i>
Journal of the Society of Arts, nos. 780, 781 .	<i>The Society.</i>
Quarterly Journal of the Geological Society, November 1866	<i>The Society.</i>
List of the Geological Society of London . .	<i>The Society.</i>
Journal of the Chemical Society, November 1866	<i>The Society.</i>
Journal of the Scottish Meteorological Society, October 1866	<i>The Society.</i>
Journal of the Franklin Institute, vol. 82, no. 490	<i>The Institute.</i>

DECEMBER 10th.

- Medico-Chirurgical Transactions, vol. 19 . . . *The Society.*
 Justin Martyr and Athenagoras, and the Apostolic
 Fathers, two volumes of Clark's Anti-Nicene
 Christian Library *Mr. R. A. Macfie.*
 Proceedings of the Royal Geographical Society,
 vol. 10, no. 6 *The Society.*
 Journal of the Society of Arts, no. 782 . . . *The Society.*
 Journal of the Linnean Society, vol. 9, no. 38 . *The Society.*
 Proceedings of the Liverpool Architectural and
 Archæological Society *The Society.*
 Report of the Liverpool Waterworks Engineer,
 October 1866 *Corporation of Liverpool.*

1867,

JANUARY 7th.

- Journal of Society of Arts; nos. 784, 785,
 786, and 787 *The Society.*
 Transactions of the Liverpool Polytechnic Society *The Society.*
 Supplement to "Ancient Meols," by Dr. Hume. *The Author.*
 Proceedings of the Royal Society, vol. 15, no. 87 *The Society.*
 Proceedings of the Meteorological Society, vol. 3,
 no. 26 *The Society.*
 Transactions of the Botanical Society of
 Edinburgh, vol. 8, part 3 *The Society.*
 Journal of the Statistical Society of London,
 vol. 29, part 4 *The Society.*
 Transactions of the Royal Scottish Society of
 Arts, vol. 7, part 2 *The Society.*
 Journal of the Franklin Institute, vol. 82, no. 491 *The Institute.*
 Abhandlungen Heranseygegeben von Naturwissen-
 schaftlichen V. zu Bremen *The Society.*

JANUARY 21st.

- Proceedings of the Liverpool Architectural and
 Archæological Society, nos. 783, 788 and 789 *The Society.*

Title.	Donor.
Journal of the Society of Arts	<i>The Society</i>
Journal of the Liverpool Polytechnic Society, .	<i>The Society.</i>
Journal of the Chemical Society, January 1867	<i>The Society.</i>
Proceedings of the Royal Society, vol. 15, no. 88.	<i>The Society.</i>
Monthly Notices of the Royal Astronomical Society, December 1866	<i>The Society.</i>
A Pamphlet on the term Esquire, reprinted from the Liverpool Courier	<i>The Author.</i>

FEBRUARY 4th.

Proceedings of the Liverpool Architectural Society	<i>The Society.</i>
Journal of the Society of Arts, nos. 740, 741 .	<i>The Society.</i>
Journal of the Franklin Institute, vol. 82, no. 492	<i>The Institute.</i>
Journal of the Chemical Society, December 1866	<i>The Society.</i>
Journal of the Asiatic Society, vol. 2, part 2, no. 85	<i>The Society.</i>
Journal of the Linnean Society, vol. 9 . . .	<i>The Society.</i>
Glimpses at the Origin, Mission and Destiny of Man, by Lawrence Heyworth	<i>The Author.</i>

FEBRUARY 18th.

Journal of the Society of Arts, nos. 742, 743 .	<i>The Society.</i>
Proceedings of the Royal Society, no. 89 . .	<i>The Society.</i>
Monthly Notices of the Royal Astronomical Society, January 1867	<i>The Society.</i>
Journal of the Chemical Society	<i>The Society.</i>
Journal of Liverpool Polytechnic Society .	<i>The Society.</i>
Proceedings of the Liverpool Architectural and Archæological Society	<i>The Society.</i>
Comparisons of Standards of Length, from the Ordnance Department.	

MARCH 4th.

Journal of the Society of Arts, nos. 744, 745 .	<i>The Society.</i>
Proceedings of the Royal Society of Edinburgh, session 1865-6	<i>The Society.</i>

Title.	Donor.
Sessional Papers, part 11, no. 2, of the Royal Institute of British Architects, 1866-7 . . .	<i>The Society.</i>
Journal of the Chemical Society, March . . .	<i>The Society.</i>
Journal of the Franklin Institute, 1867 . . .	<i>The Institute.</i>
Reflections on the Position and Prospects of Architecture, by H. H. Statham, Jun. . . .	<i>The Author.</i>
Proceedings of the Liverpool Architectural and Archæological Society, November 1866 . . .	<i>The Society.</i>
Proceedings of the Meteorological Society, November 1866	<i>The Society.</i>
Quarterly Journal of the Geological Society February 1867	<i>The Society.</i>

MARCH 18th.

Proceedings of the Royal Society for February 1867	<i>The Society.</i>
Proceedings of the Royal Geographical Society, for February 1867	<i>The Society.</i>
Monthly Notices of the Royal Astronomical Society, for February 1867	<i>The Society.</i>
Journal of the Scottish Meteorological Society, January 1867	<i>The Society.</i>
Journal of the Society of Arts, nos. 746, 747 . . .	<i>The Society.</i>
Mitherrlungen der Kaiserlich Koniglichen Geo- graphischen Gesellschaft Wien	<i>The Society.</i>

APRIL 1st.

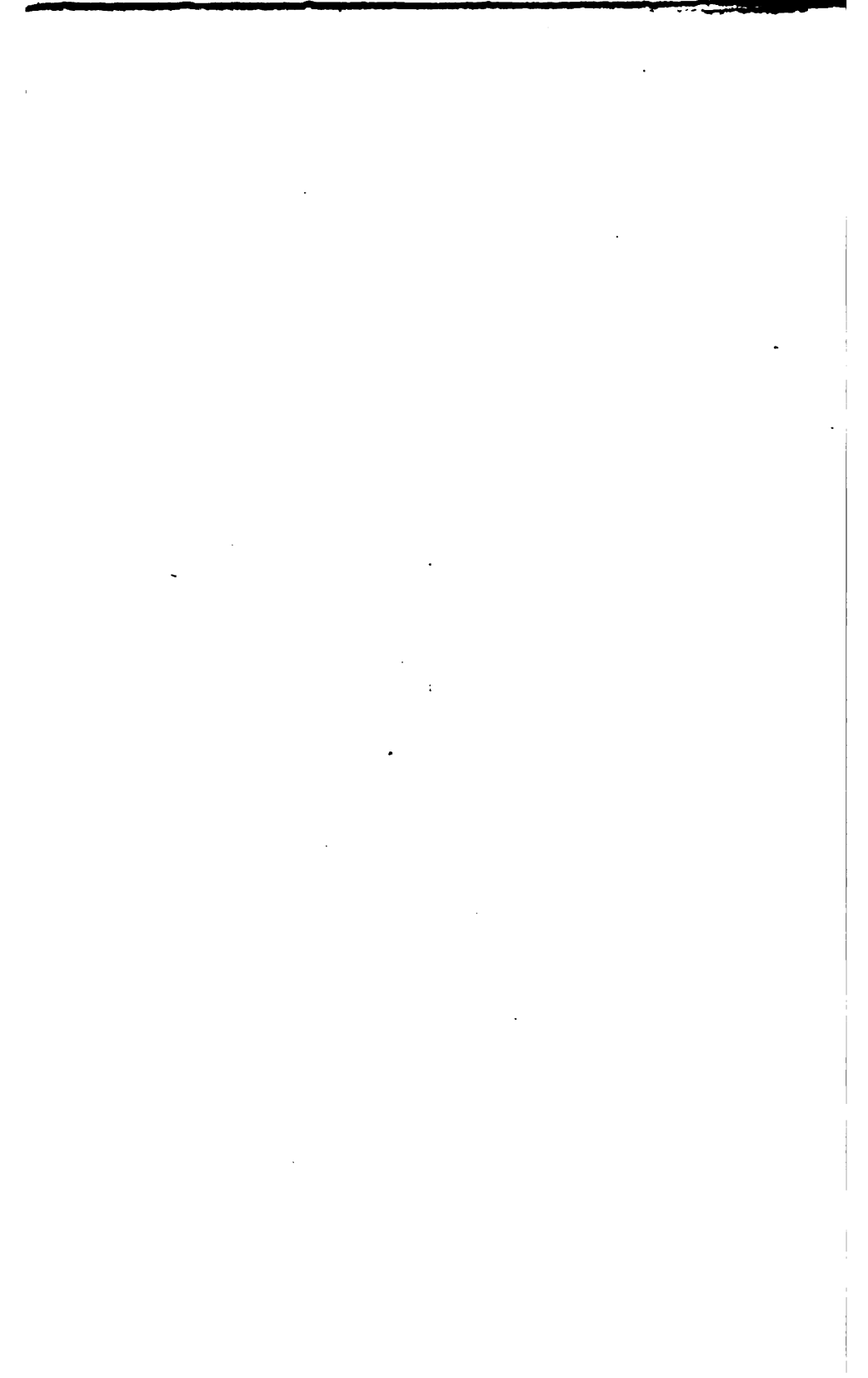
Journal of the Society of Arts, nos. 748, 749 . . .	<i>The Society.</i>
Proceedings of the Meteorological Society, January 1867	<i>The Society.</i>
Proceedings of the Berwickshire Naturalists' Club	<i>The Club.</i>

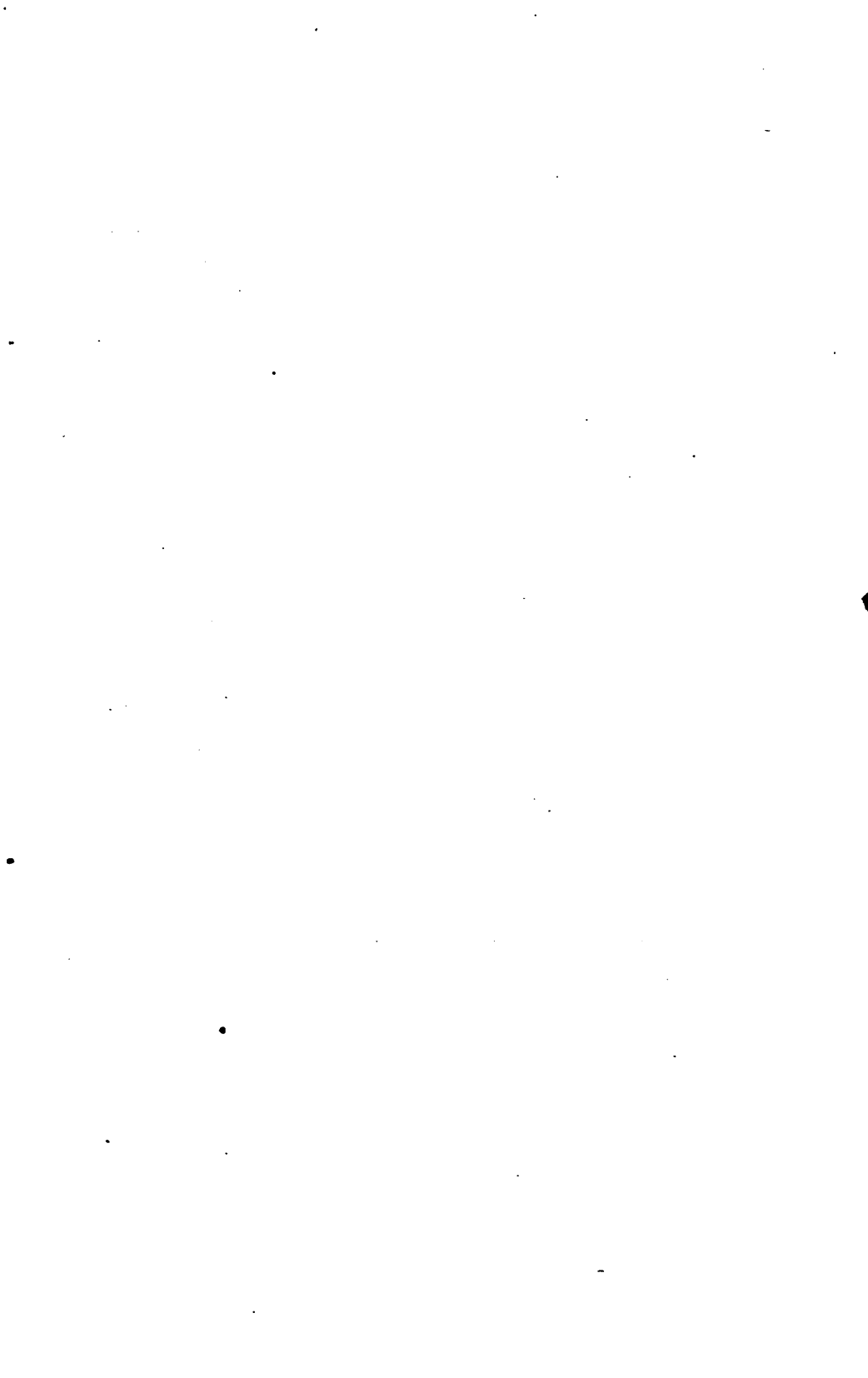
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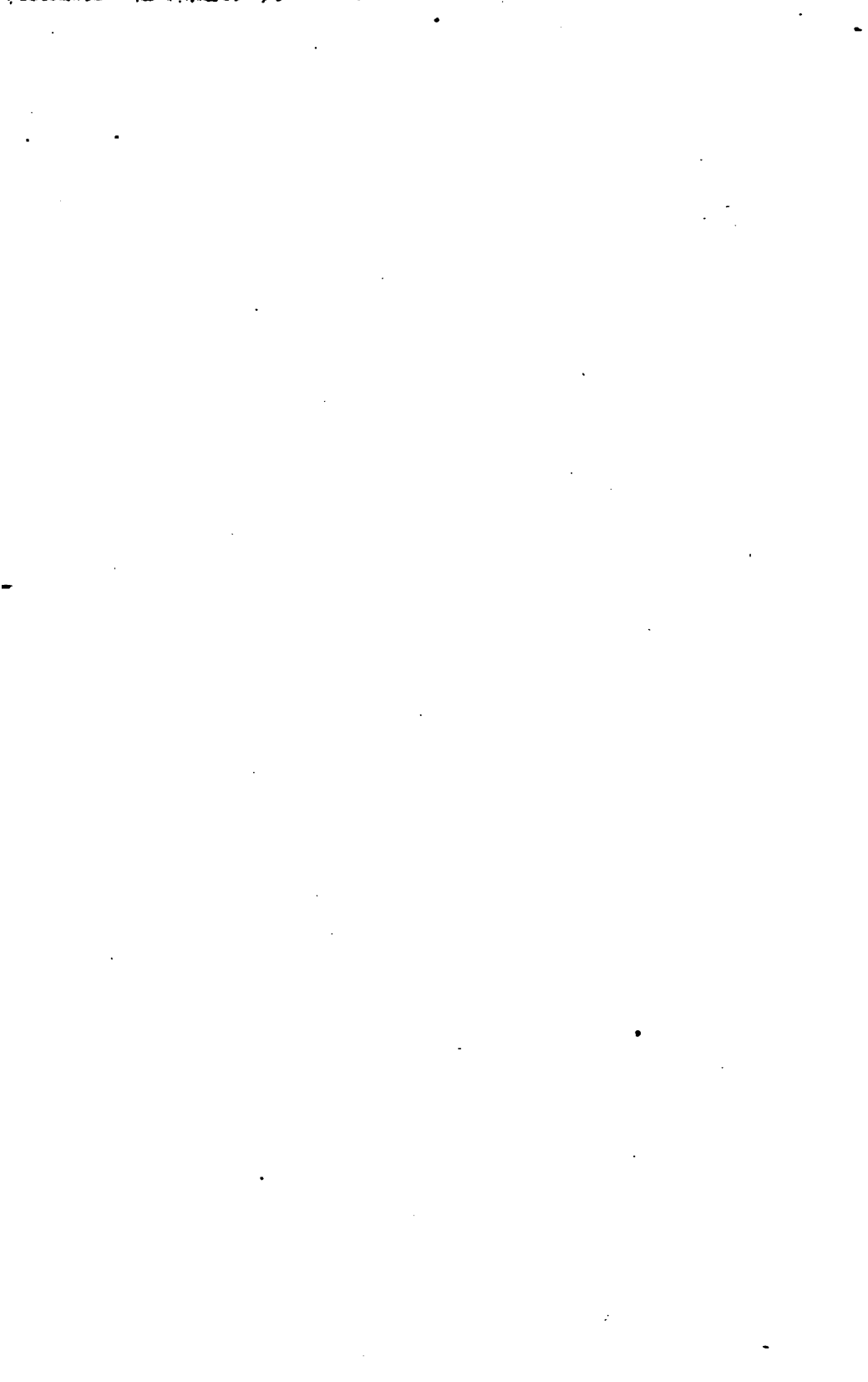
Journal of the Franklin Institute, February 1867	<i>The Institute.</i>
Proceedings of the Royal Society, vol. 15, no. 91	<i>The Society.</i>
Journal of the Chemical Society, April 1867 . . .	<i>The Society.</i>
Journal of the Linnæan Society, April 1867 . . .	<i>The Society.</i>

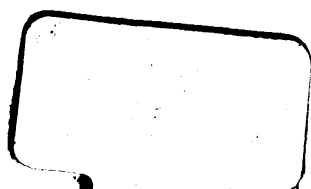
Title.	Donor.
Proceedings of the Meteorological Society,	
February 1867	<i>The Society.</i>
Journal of the Society of Arts, nos. 750, 751 .	<i>The Society.</i>
Journal of the Statistical Society, March 1867 .	<i>The Society.</i>
Proceedings of the Liverpool Architectural and Archæological Society	<i>The Society.</i>
Journal of the Liverpool Polytechnic Society .	<i>The Society.</i>
APRIL 29th.	
Journal of the Society of Arts, nos. 752, 753 .	<i>The Society.</i>
Mitherrlungen der Kaiserlich Koniglichen Geo- graphischen Gesellschaft der Wien	<i>The Society.</i>
Verhandlungen des Vereins fur Naturkunde ter Presburg	<i>The Society.</i>
Monthly Notices of the Royal Astronomical Society, March 1867	<i>The Society.</i>
Journal of the Franklin Institute, March 1867	<i>The Institute.</i>
Proceedings of the Liverpool Architectural and Archæological Society	<i>The Society.</i>
Proceedings of the Liverpool Philomathic Society, 1865-6	<i>The Society.</i>
Proceedings of the Geological and Polytechnic Society of the West Riding of Yorkshire, 1864-5	<i>The Society.</i>

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